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# **Upper Cook Inlet Salmon Escapement Studies, 2004**

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**David L. Westerman**

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**T. Mark Willette**

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September 2006

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries





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David L. Westerman and T. Mark Willette

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September 2006

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## ABSTRACT

Sockeye salmon *Oncorhynchus nerka* escapements into 4 river systems of Upper Cook Inlet, Alaska, were estimated using side-scanning sonar equipment. Fish wheel catches were used to apportion sonar counts in the Crescent and Yentna Rivers, and in the Kenai River, when other species of fish (mostly salmon) consistently exceeded 5% of the fish wheel catch (7–18 August only). Estimated sockeye salmon escapements were 1,385,981 into the Kenai, 577,581 into the Kasilof, 103,201 into the Crescent, and 71,281 into the Yentna rivers. Incomplete indices of escapements of other salmon species into the Yentna River were also obtained by sonar: pink *O. gorbuscha*, chum *O. keta*, and coho *O. kisutch* salmon. The majority of sockeye salmon in the Kenai River consisted of age-1.3 (69.1%); age-2.3 (11.1%) and age-1.2 (10.1%). The majority Kasilof River sockeye salmon were primarily age-1.2 (43.7%); age-2.2 (32.6%), and age-1.3 (18.9%). Age-2.3 sockeye salmon were the most abundant (38.0%) age class in the Crescent River, followed by age-1.3 (31.3%), age-2.2 (16.0%), and age-1.2 (14.1%) fish. The majority of Yentna River sockeye salmon were age-1.3 (50.0%), age-2.3 (21.7%), and age-1.2 (17.0%). Length and sex ratio data were collected for sockeye salmon in each river. Sockeye salmon migrated near shore in all river systems. Hourly peak salmon counts were typically recorded during the evening and early morning hours along the north bank and during the afternoon and evening hours along the south bank in the Kenai River. Peak hourly counts along the north bank of the Kasilof River generally occurred throughout the day, beginning in the morning and continuing into the evening before declining substantially late in the evening. Peak hourly counts along both banks of the Crescent River occurred in late morning through the evening and reflected post meridiem high tides. Peak hourly counts along both banks of the Yentna River were recorded during the late afternoon and evening hours. The majority of the fish counts at all sites were recorded within the onshore half of the ensonified range of the transducers.

Key words: Upper Cook Inlet, sockeye salmon, *Oncorhynchus nerka*, Kenai River, Kasilof River, Crescent River, Yentna River, Susitna River, age, sex, size, sonar, escapement, fish wheel, substrateless.

## INTRODUCTION

The primary program objectives of Upper Cook Inlet (UCI) escapement projects in 2004 were to: (1) estimate the daily and cumulative number of sockeye salmon *Oncorhynchus nerka* entering the Kenai, Kasilof, Crescent, and Yentna rivers; and (2) determine the age, sex, and length (ASL) composition of those escapements. Providing daily escapement estimates aids fisheries biologists in making daily fisheries management decisions for Upper Cook Inlet and in attaining the escapement goals for the various rivers as set by the Alaska Board of Fisheries.

The inriver escapement goals for late-run sockeye salmon into the Kenai River depend on the projected run strength of this stock, ranging between 650,000 and 1,100,000 sockeye salmon. The other major sockeye salmon stocks in UCI are managed for biological escapement goals and are not dependent upon projected run strengths. The sockeye salmon escapement goal for the Kasilof River is 150,000–250,000; for Crescent River, 30,000–70,000; and for the Yentna River, 90,000–160,000.

Prior to 1968, sockeye salmon escapement estimates in UCI (Figure 1) were based on surveys of clear water spawning areas and provided no information about the distribution or number of sockeye salmon spawning in glacially occluded waters (King and Davis 1989). Commercial and recreational fishery management efforts were further hampered by lack of daily and cumulative estimates of escapement. These constraints were significantly reduced by the development of hydroacoustic techniques to enumerate sockeye salmon in some glacial tributaries of UCI.

The use of sonar to estimate salmon escapement began on the Kenai and Kasilof rivers in 1968 with the use of multiple transducer systems (MTS), which were oriented linearly in up-looking positions (Namtvedt et al. 1979). Transition from MTS to side-scanning sonar (SSS) occurred in

the Kenai River in 1977 when all counts were derived with a 1974 model MTS, except during the period 12 July through 3 August, when a 1977 model SSS was employed on the north bank. Similarly, SSS was utilized on the north bank of the Kasilof River in 1977, but south bank counts were derived by use of a MTS array. By 1979, both banks of the Kasilof River were utilizing SSS. In the other rivers, SSS has been used in the Crescent River since operations began there in 1980, and although an attempt to utilize MTS equipment failed in the Susitna River in 1976, the use of SSS began successfully in 1978.

After the transition was made from MTS to SSS, all counters operated with the use of an artificial substrate. The artificial substrate was 18.2 m in length and consisted of a 15.2 cm aluminum tube positioned on the bottom of the river and perpendicular to the bank, forcing fish to move across the tube and through the sonar beam. Because of the effect the artificial substrate had on fish behavior and constant maintenance problems, a transition to substrateless SSS counters was eventually made on all rivers beginning in the late 1980s. Substrateless counters were deployed for the first time in the Kenai River in 1987 (north bank) and 1993 (south bank), Crescent River (both banks) in 1988, Yentna River in 1994 (south bank) and 1995 (north bank), and Kasilof River in 2003 (both banks).

The location of all sonar sites has remained the same for the past 20–25 years, however, the location of three of the sites (Kasilof, Crescent, and Yentna rivers) was different when sonar was first used to enumerate sockeye salmon runs in Upper Cook Inlet in the late 1970s and early 1980s. The Kenai River sonar site has always been located at river mile (RM) 19.5. In 1983, the Kasilof River counting site was relocated from the outlet area of Tustumena Lake to approximately RM 10.5, near the Sterling highway bridge, and closer to Cook Inlet. Escapement enumeration began at Crescent River in 1980 below the outlet of Crescent Lake and was relocated nearer Cook Inlet (RM 1.5) in 1984. The Susitna River counting site was abandoned in 1985 when recurrent flooding rendered the site untenable, and counting operations began on the Yentna River, a major tributary of the Susitna River, in 1986.

## METHODS

Bendix Corporation<sup>1</sup> side-scanning sonar counters described by King and Tarbox (1989), Gaudet (1983) and Bendix Corporation, (1980, 1984) were used to enumerate salmon escapements. The Bendix counters were operated at a pulse width of 100 milliseconds (ms), a transducer frequency of 515 kHz with 2° and 4° transducer elements either multiplexed in an alternating mode or on a single beam, depending primarily on environmental conditions. The counting threshold of the Bendix SSS was set by the manufacturer at –38 dB, but tests with a standard target (-41 dB) indicated the actual threshold was lower. To calibrate the counters, the pulse repetition rate was adjusted to match the swim speeds of migrating salmon through the operational period at all sites. The counters have been tested (and repaired if needed) annually prior to the start of operations by Al Menin (consultant and creator of the Bendix counter) until his retirement in 2002, and recently by Russ Thynes of Petersburg Electronics. The counters were tested again by technicians at or near the time of deployment.

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<sup>1</sup> Product names used in this report are included for scientific completeness but do not constitute a product endorsement.

Once the equipment was in the water, the transducers were aimed by remotely controlled rotators on the north bank of the Kenai River, the north bank of the Kasilof River and both banks of the Yentna River. Transducers were aimed manually when remotely controlled rotators were not used. Proper aim of the acoustic axis was tested using an artificial target (a sealed, weighted plastic sphere) when the transducer was deployed and occasionally during the operational period. The artificial target was moved through the ensonified area at various distances from the transducer verifying detection by the counter with a simultaneous visual recognition of that target on an oscilloscope. The distance from the transducer to shore was varied depending on water depth and velocity. Short weirs (<6 m long) were placed immediately downstream of the transducers to prevent fish from passing behind or too near the transducers. In 2002 and 2003, the Kenai River counters were interfaced directly to Dell laptop computers for the first time which allowed us to transfer the hourly sonar counts directly into an Excel spreadsheet (form 288) without having to manually enter the data. This practice was continued again in 2004 and expanded the concept to two of the other projects. In 2004, the Kasilof and Yentna River counters were interfaced with hand-held DOS computers (Juniper Systems Pro 4000 field computer) which allowed the crew to automatically enter the raw sonar counts directly into the 288 spreadsheet. The Crescent River sonar counts were manually entered into spreadsheets. Although escapement counts are no longer manually entered at three of the sonar projects, the false data from the daily totals at all the sites still needed to be edited. All raw, false output data were scrutinized and edited to account for false counts created by debris, bottom echoes, or other sources of non-fish counts. Hourly sonar counts were entered into an Excel spreadsheet that calculated an average hourly, daily count for each sonar sector, i.e.:

$$Ca = Cb/N \quad (1)$$

where:

$Ca$  = average count per sector per hour;

$Cb$  = valid hourly counts for affected sector and adjacent sectors; and

$N$  = number of sector per hour units which contained only valid counts.

Note: there are 12 sectors within the counting range of the counter (a sector represents 1/12<sup>th</sup> of the counting range).

The average was then substituted into any sector/hour block where counts were deleted through editing. Technicians determined, mostly through direct observation, which counts were to be deleted while monitoring the counters and/or at the time the 288 form was finalized.

The counters were generally monitored when the highest densities of fish were migrating past the counters, from 0700 to 0300 hours on the Kenai River and from 0700 hours to 0100 hours on the Kasilof River. At Crescent River, counters were monitored throughout the day, but observations were concentrated when passage rates were at daily peaks. Yentna River counters were monitored from 0600 to 0200 hours on the south bank and from 0700 to 2400 hours on the north bank. In addition to the regular monitoring schedule, monitoring efforts were intensified during episodic periods of high rates of fish passage. At all sites except the Yentna River, visual counts made from an oscilloscope were compared to the sonar counts produced during a minimum 10-minute period or for a minimum oscilloscope count of 100 fish. Because of the mixed species of fish running in the Yentna River, a minimum count over a 20-minute period or a minimum oscilloscope observation of 200 fish to monitor and calibrate the counters was

required. The primary counter adjustment normally consisted of changing the pulse repetition rate. At all sites, visual counts were compared to the Bendix counts and adjustments to the counter (calibrations) were made if a relative error greater than 20% occurred. However, technicians usually calibrated the counters when relative error was less than 10%. During periods of low passage rate (<500 fish per hour), the Kenai and Yentna rivers oscilloscope/counter observations were made at a minimum of 1 hour per bank each day. When passage rates reached 500 fish per hour or greater, the required minimum observation time was increased to more than 2 hours per bank per day. The Kasilof River and Crescent River counters were generally monitored for a minimum of 2 hours per bank per day.

Fish distribution was plotted by hour, sector, and riverbank from the daily escapement estimates, and the cumulative proportion of the total sonar count was calculated by day. The crew determined the spatial distribution of the fish from the transducer using daily calibration data (maximum counting range).

Fish wheels were used at all of the sonar sites to estimate species composition of sonar counts and to collect age, sex, and length (mid-eye to tail fork in mm) composition data from sockeye salmon. Fish wheels were operated along the north bank of the Kenai River, north bank of the Kasilof River, south bank of the Crescent River, and on both banks of the Yentna River.

In 2004, the crew sampled a minimum of 500 sockeye salmon each week (sample period) for ASL measurements from the Kenai and Kasilof rivers. These samples were also used to aid in the determination of river-of-origin of stocks caught in the commercial fishery.

Criteria has been established to begin apportionment to species in the Kenai River using fish wheel data. Species apportionment was initiated when at least 5% of fish wheel catches were species other than sockeye salmon and this was judged to be an increasing trend. This guideline was developed primarily to accommodate situations where run timing of sockeye and pink *O. gorbuscha* salmon overlap in even-numbered years.

Kasilof River sonar counts have seldom been apportioned to species, because other species such as pink and coho *O. kisutch* salmon are a very small component of the overall escapement into the Kasilof River during sonar operations. However, application of the '5% other species' criterion has been used when applicable. When fish wheel catch efficiency was low while sonar counts were relatively high, the crew drifted a 4 inch mesh gillnet in the Kasilof River to collect sockeye salmon for ASL measurements and to compare species composition of gillnet and fish wheel catches.

Because of their size (>350 mm) and abundance, Dolly Varden *Salvelinus malma* char were included in the sonar count apportionment at Crescent River. Typically, few Chinook *O. tshawytscha* salmon have been captured in the fish wheel at Crescent River because (1) the majority of the run has passed the sonar site before counting operations began; or (2) the off-shore distribution in the river. Prior to 2000, Dolly Varden char and Chinook salmon were combined for sonar count apportionment, but beginning in 2000, sonar counts were apportioned for each species.

At Yentna and Crescent rivers, fish wheels were operated until a minimum sample size of 1% of the previous day's sockeye salmon escapement had been caught. At these 2 sites, fish wheel catch data were used for species apportionment of sonar counts and ASL measurements.

Each of the Yentna River fish wheels were operated during three different time periods each day (1 to 2 hours per period, depending on fish density): 0600–1200, 1200–1800, and 1800–2400 hours. Factors influencing the accuracy of escapement estimates for pink, coho, chum *O. keta*, and Chinook salmon in the Yentna River have been discussed by Tarbox et al. (1981, 1983).

Sonar operations were terminated when daily sockeye salmon counts were  $\leq 1\%$  of the cumulative count of sockeye salmon for 3 consecutive days. This project cessation criteria was applied to the Kenai and Kasilof rivers only after the end of commercial fishing. Exceptions were made to the project cessation timing because of budgetary constraints and/or environmental conditions that might put people or equipment at risk.

Ground surveys were conducted on a number of index streams within the Kenai River and Kasilof River drainages, counting all live and dead salmon, and noting predator activities on each of the streams.

## RESULTS

### KENAI RIVER

An estimated 1,385,981 sockeye salmon past the Kenai River sonar site (Table 1) from 1 July through 18 August and 117,561 pink salmon and 38,206 coho salmon (Table 2) were apportioned between 7 August and 18 August. The preseason total run forecast for the Kenai River was 3.2 million sockeye salmon (M. Willette, Commercial Fisheries Biologist, ADF&G, Soldotna; personal communication).

In 2004, 80% of the run was counted in a 29 day period with the midpoint of the sockeye salmon run occurring on 25 July, 3 days later than the historical mean (Table 3). There were two substantial peaks in the daily passage rate of sockeye salmon; the first one on 15 July when 138,212 fish passed the counters and another lesser peak of 95,470 fish on 22 July (Figure 2). At the time of the peak, over 344,000 sockeye salmon were counted during a 3-day period, 14 July through 16 July. Run timing was similar for both banks throughout the season (Figure 3) with the north bank accounting for 49% of the run (Table 4).

Typically, fish migrate farther from shore along the north bank than the south until the water level rises and water velocity increases (Table 5; Figure 4). Because of the offshore spatial distribution, the counting ranges were greater and more variable on the north than the south bank, ranging from 9.1 to 21.9 m. The crew counted 81% of the run within approximately 5 m of the north bank transducer. The south bank counting ranges were less variable, ranging from 4.3 to 7.0 m, with 82% of the migration occurring within 2.5 m of the transducer.

Contrary to our comparison of spatial distribution between banks, where counting ranges were more variable along the north bank, the hourly passage rate was less variable along the north bank than the south (Figures 5 and 6). Salmon passage rates along the north bank exceeded a constant daily rate of 4.2% between 1900 and 0400 hours, when 45.3% of the total sockeye salmon run passed the counters. A distinctly different pattern of fish passage occurred on the south bank, exceeding 4.2% between 1200 and 2300 hours when 63.2% of the fish migrated past the counter.

Our fish wheel catch consisted mostly of sockeye salmon (73.7%), but pink salmon (18.8%) and coho salmon (5.0%) were present late in the sockeye run (Table 6). The fish wheel catch was 3,299 sockeye salmon, from which 1,275 scale samples, sex determinations, and lengths were

obtained (Table 7). The largest component of the sockeye salmon escapement was age-1.3 (69.1%), followed by age-2.3 (11.1%), and age-1.2 (10.1%) fish (T. Tobias, Commercial Fisheries Technician, ADF&G, Soldotna; personal communication 2004). Mean length by sex and male-to-female ratios were within historical bounds for age-1.2 and -1.3 fish (Table 8). The fish wheel catch of pink and coho salmon began in August and continued until project operations ended on 18 August.

Alaska Department of Fish and Game (ADF&G) Division of Sport Fish personnel counted 110,244 sockeye salmon during the late run of salmon through the Russian River weir (P. Berkhahn, Sport Fish Biologist, ADF&G, Soldotna; personal communication 2003) in July and August, 2004 (Table 9). An additional 30,458 sockeye salmon were estimated by foot survey below the Russian River weir bringing the total Russian River sockeye salmon escapement estimate to 140,702. Cook Inlet Aquaculture Association personnel counted 19,130 sockeye salmon through the Hidden Creek weir in July and August 2004 (G. Fandrei, Cook Inlet Aquaculture Association, Soldotna; personal communication 2004). Russian River and Hidden Creek weir counts were not closely correlated to the sonar estimates as shown in a linear regression analysis in Figure 7. ADF&G Commercial Fisheries Division personnel conducted several stream surveys of the Upper Kenai River watershed. Quartz Creek yielded a count of 13,225 sockeye salmon on 18 August; Ptarmigan Creek yielded 4,428, surveyed on August 31, and Moose Creek yielded 2,132, surveyed on 31 August.

Supporting data are provided in Appendices A1 through A11.

## **KASILOF RIVER**

A total of 577,581 sockeye salmon passed the Kasilof River sonar site between 15 June and 16 August, the highest sonar counts on record (Tables 1 and 10). No other species were apportioned from the escapement estimates.

In 2004, 80% percent of the run was counted in a 46 day period with the midpoint occurring on 14 July, 2 days later than the historical mean (Table 11). There were two substantial peaks in the sockeye salmon run; the first occurred on 14 July when 92,732 fish passed the counters and the second occurred on 24 June when 28,054 fish were counted (Figure 2). The 14 July daily peak was the highest daily peak in the history of sonar operations on the Kasilof River (Table 12). Run timing was similar for both banks with approximately 57% of the run migrating along the south bank (Figure 6).

Overall, there wasn't much difference in offshore spatial distribution between the north and south banks in 2004 although some variation occurred at different times of the run (Table 5; Figure 8). As the river water level rose and neared its yearly peak flow, fish were slightly more bank-oriented along the north bank than the south bank. For the entire run, the estimate is that almost 90% of fish passage along the north bank occurred within 4.3 m of the transducer. The counting range for the north bank was reduced from 18.3 m in June to only 3.4 m near the end of operations in August. About 80% or more of the fish counted were within 4.5 m of the transducer along the south bank. The counting range for the season ranged from 19.8 m early in the run to 7.6 m near the end.

Approximately 84.8% of fish along the north bank were counted between 0600 and 2200 hours when the passage rate met or exceeded a constant daily passage rate (4.2%) (Figures 6 and 9).

Approximately 71.9% of fish along the south bank were counted between 0600 and 1200 hours, and again between 1800 and 2400 hours, when the passage rate met or exceeded the constant daily passage rate.

The fish wheel catch consisted mostly of sockeye salmon (95.6%) with a few pink salmon (2.3%) captured late in the season (Table 13). A total of 1,991 sockeye salmon were captured in the Kasilof River fish wheel, of which 908 were sampled for ASL characteristics (Table 14). Age-1.2 (43.7%), age-2.2 (32.6%), and age-1.3 (18.9%) sockeye salmon were the predominant age classes. Mean lengths and male-to-female ratios for the major age classes fell within historical bounds with female spawners comprising 54% of the sample (Table 15).

Catching enough fish from the fish wheel for ASL and species composition became difficult late in the season, so a drift gillnet was used in the river to compare species composition between the fish wheel and gillnet. The gillnet harvest totaled 60 sockeye salmon and no other species in a 2 day effort (6 and 9 August).

Stream survey counts were conducted primarily on 3 index streams that drain into Tustumena Lake: Bear, Moose and Glacier Flats creeks (Table 16). The crew counted (live and dead) 29,431 sockeye salmon in Bear Creek, 28,934 sockeye salmon in Moose Creek and 28,073 sockeye salmon in Glacier Flats Creek. Surveys on Moose and Glacier creeks were the highest ground surveys on record. Regression analyses are shown in Figure 10, comparing the Moose and Glacier Flats stream survey counts with Kasilof River sonar counts. Crews also conducted surveys on Nikolai, Crystal, Clear and Seepage creeks.

Supporting data are provided in Appendices B1 through B11.

## **CRESCENT RIVER**

The crew apportioned 103,201 sockeye salmon from the Crescent River sonar counts between 24 June and 5 August, as well as an additional 1,198 pink salmon, 1,134 chum salmon and 2,974 Dolly Varden char (Table 17).

In 2004, 80% of the sockeye salmon run was counted in 31 days with the midpoint of the migration occurring on 13 July, 4 days earlier than the historical mean (Table 18). Three peaks were observed in daily sockeye salmon passage, the biggest occurred on 14 July when 7,409 sockeye salmon crossed the counters while lesser peaks occurred on 29 June (4,023), and 29 July (4,729) (Figure 2). Run timing for both banks was similar while distribution by bank was typical for the Crescent River, with 64% of the fish migrating along the north bank (Table 4; Figure 3).

Fish targets were shore-oriented along both banks, with 86% of the counts within the first 4 m of the north bank transducer and 93% of the counts within the first 2 m of the south bank transducer (Table 5; Figure 11). Counting ranges varied between 4.0 and 12.2 m on the north bank, while ranges on the south bank ranged from 5.5 to 9.1 m.

Salmon passage rates along the north bank exceeded a constant daily passage rate (4.2%) between 0900 and 1500 hours and between 1700 and 2200 hours when 68.1% of the fish passed the counter (Figures 6 and 12). The highest hourly passage rates along the south bank ( $\geq 4.2\%$ ) occurred between 0900 and 2200 hours when 73.1% of the fish passed the counter. Because our counters were located near Cook Inlet, daily peaks in the passage rate usually followed (within 2 to 3 hours) the afternoon high tide, with peak timing less obvious on morning high tides (Figure 13).

The Crescent River fish wheel captured 1,582 sockeye salmon (92.6%) out of a total catch of 1,709 fish (Table 19), which includes 489 sampled for ASL data (Table 20). The largest component of the sample was age-2.3 fish (38.0%), with other major components represented by age-1.3 (31.3%), age-2.2 (16.0%) and age-1.2 (14.1%) fish. Mean lengths and male-to-female ratios for the major age classes, (females accounting for 48.5% of the sample) fell within historical bounds (Table 21). Other species caught in the fish wheel included Dolly Varden char (3.3%), pink salmon (1.8%) and chum salmon (1.6%). Pink and chum salmon were just beginning to occur in the catch when operations ceased on 5 August, so these catches were not a true indicator of run strength.

Supporting data are provided in Appendices C1 through C11.

## **YENTNA RIVER**

The Yentna River sonar counted 402,144 salmon between 7 July and 12 August, which includes 71,281 (17.7%) counts apportioned to sockeye salmon, the lowest return of sockeye salmon since 1992 (Table 22). Other major components of the run were 220,347 pink salmon (54.8%), 92,343 (23.0%) coho salmon, and 16,415 (4.1%) chum salmon.

In 2004, 80% of the salmon run was counted over a 22 day period with the midpoint occurring on 19 July, 4 days earlier than the historical mean (Table 23). Only one substantial peak in daily passage rate of sockeye salmon occurred on 16 July, when 12,179 fish passed the counting site (Figure 14). However, a number of substantial peak counts were observed for all species of salmon on 16 July, 23 July, 26 July, and 31 July. With the exception of the 16 July peak, sockeye salmon run timing was not comparable between banks because of the small proportion of the species (6%) counted along the north bank. Between 7 July and 12 August, pink salmon peaked on 26 July, coho salmon on 26 July (and ran consistently strong throughout much of the operational period), and chum salmon peaked on 6 August (Figure 15).

Sonar counts indicated that salmon passage was shore-oriented on both banks throughout the season (Table 5; Figure 16). The crew observed 86% of salmon migrating within the first 2.9 m of the north bank transducer, which varied between 7 and 11 m through the season. On the south bank, 88% of the migration was observed within the first 3.5 m of the transducer which varied from 6.2 to 8.5 m through the season.

Fish passage rates increased during late afternoon and early evening hours and generally remained above a constant daily passage rate (4.2%) past midnight (Figure 17). The average hourly passage rate on the north bank met or exceeded 4.2% from 1600 through 0200 hours (Figure 6). Counts during these periods of high passage rate accounted for 59% of the total north bank daily counts. Higher than average passage rates ( $\geq 4.2\%$ ) occurred on the south bank between 1200 and 0200 hours and 1700 and 0400 (except 2100) hours, accounting for 60% of the south bank daily counts.

The north bank fish wheel had a mean CPUE of 28.1 fish per hour and caught a total of 6,837 fish, which included 394 sockeye salmon, 4,613 pink salmon, 338 chum salmon, and 1,406 coho salmon (Table 24). The south bank fish wheel had a mean CPUE of 76.8 fish per hour and caught a total of 15,590 salmon, which included 2,712 sockeye salmon, 8,147 pink salmon, 835 chum salmon and 3,832 coho salmon (Table 25). Both fish wheels combined caught 22,427 fish, of which 3,106 were sockeye salmon, or 13.8% of the total catch. The crew sampled 460 sockeye salmon for ASL data, and the major age classes determined were age-1.3 (50.0%),

age-2.3 (21.7%) and age-1.2 (17.0%) fish (Table 26). The proportion of age-2.3 fish was the highest on record while ages -1.2 and -1.3 fell within historical bounds. Average lengths for all age classes also fell within historical bounds (Table 27). Male-to-female ratios were typical for the river with females composing 51.7% of the major age classes sampled.

Supporting data are provided in Appendices D1 through D11.

## **DISCUSSION**

The 2004 sonar projects were similar to past years with 3 rivers (Kenai, Kasilof, and Crescent) experiencing higher than normal runs of sockeye salmon. Counting conditions on all rivers were within design and operational tolerances of the Bendix side-scanning sonar system because: 1) salmon passage was inshore and near the bottom during the peak of the run; 2) salmon densities were generally adequate for system adjustment; and 3) One species, sockeye salmon, composed most of the run in all rivers except the Yentna River (18%). For additional information, a list of supplemental reports related to Upper Cook Inlet salmon escapement is listed in the bibliography.

### **KENAI RIVER**

The sockeye salmon run in 2004 was the third highest since sonar operations began on the Kenai River in 1970, with larger counts occurring in 1987 and 1989. The higher sockeye salmon counts in 1987 and 1989 are attributed to the Glacier Bay oil spill (1987) and the Exxon Valdez oil spill (1989) when commercial fishing was restricted for part of or all of the fishing season.

The run timing in the Kenai River was typical and fish were distributed evenly by bank. Fish distribution from shore was normal, with fish dispersed farther offshore along the north bank early in July when water level was at its lowest during the run. As the month of July progressed the fish became more shore-oriented along the north bank as greater fish densities arrived and as the water level and water velocity increased.

Fish distribution along the south bank was strongly shore-oriented, but the crew observed that fish behavior was affected by human disturbances in the water or from activity on the boat dock located immediately below the weir. Fish usually moved offshore and out of the counting range for several minutes until such activities ceased (sometimes as much as 10 minutes, depending on the duration of the disturbance). Water level had less of an impact on spatial distribution along the south bank than the north bank.

Species apportionment of sonar counts was discontinued in 1995 because of a potential problem in the apportionment process when a disproportionate number of non-sockeye salmon species (Chinook salmon) appeared in the fish wheel catch (Davis 2001). Additionally, the numbers of fish of other species were considered insignificant during the time sockeye salmon were being counted under normal run timing circumstances except those years when pink salmon entered the river (usually starting in August). Prior to 1999, a minimum fish wheel sample of 150 fish was required to constitute a period for apportioning sonar counts. However, during periods of low passage rates, several days were often required to attain an adequate sample size. This method of apportioning sonar counts was replaced by daily apportionment based on actual fish wheel catch in year 2000 and was continued through year 2004. Altering the method of species apportionment did not significantly change the final estimates ( $p < 0.05$ ) (S. Carlson, ADF&G,

Soldotna; personal communication) and was more defensible. Use of the current criteria for species apportionment (>5% of the total fish wheel catch being non-sockeye species) began in August 1999. The fish wheel catch prior to 7 August 2004 (when apportionment began) consisted primarily of sockeye salmon (98.4%) then decreased when pinks and coho salmon started running. Counts of species other than sockeye salmon were of no value as index counts due to extended run duration (coho or pink salmon), passage upstream outside of the ensonified area (coho and Chinook salmon), and disproportionate fish wheel catches.

In 2004, the crew sampled a minimum of 500 sockeye salmon each week for ASL analysis. The ASL compositions were typical of the Kenai River escapement.

Stream surveys were conducted on Quartz Creek for the tenth year in succession at a time when spawning activity was believed to be at or slightly past its peak. Although 13,225 fish was not an exceptionally high count for Quartz Creek, it is higher than counts during brood years. The crew surveyed that section of Quartz Creek from the Sterling Highway power substation to Kenai Lake, a distance of about 8 km (5 miles) was surveyed.

## **KASILOF RIVER**

The sonar counters were operated without the use of artificial substrates, reducing maintenance demands and generally improving the overall efficiency of sonar operations on the Kasilof River. The run of sockeye salmon into the Kasilof River was our highest estimate on record since sonar operations began in 1970. Prior to 2004, the highest return estimate had occurred in 1985, when over 505,000 sockeye salmon passed the counters.

The run timing was typical for the Kasilof River, but the number of fish passing the counters was much higher than expected. Daily peaks of fish numbering in the thousands (sometimes >10,000) at the end of June occurred often, but rarely has more than 20,000 fish been counted in a single day like the third week of June when more than 20,000 fish per day were counted in 4 consecutive days (>100,000 fish counted between 21 and 25 June). Furthermore, the peak count that occurred on 14 July, when over 92,000 fish passed the counters, was the highest single day passage experienced since the beginning of sonar operations on the Kasilof River. The previous high for the Kasilof River occurred on 16 July 1985, when over 58,000 salmon passed the sonar counters.

Fish spatial distribution was typical for sockeye salmon and was dependent on river flow. Very low fish counts in the outer sectors indicated that the majority of fish passed well within the counting range of the transducer beam during project operations.

Despite a proportionately high fish wheel catch of pink salmon in August, sonar counts were not apportioned to other species in 2004 because the daily sample sizes in August were too small (<10 fish/day). Failure to capture salmon in the fish wheel in August is not unusual. We speculate that two environmental factors may affect fish wheel efficiency in August: 1) river current forces the fish wheel to rotate too fast tossing some fish back into the river rather than into the holding box, and 2) large rocks on the river substrate may prevent the wheel from reaching the river bottom, allowing fish to evade the trap. When water levels rise in July and August, the fish wheel is moved nearer shore and into an area of small boulders that may prevent the fish wheel from fishing near the bottom, affecting catch efficiency. Efforts to fix these possible escape routes have failed to improve fish wheel catch efficiency.

Run timing, counter limitations, and spawning locations relative to the sonar site made sonar escapement estimates for Kasilof River pink, coho, and Chinook salmon impractical. Coho salmon enter the river primarily in August (G. Kyle, ADF&G, Soldotna; personal communication). Early and late-run Chinook salmon migrated past the sonar site during the time when sockeye salmon were counted, but no counts were apportioned to this species. Sonar counts were not apportioned to Chinook salmon, because they were not likely captured in the fish wheel in proportion to their abundance during the latter portion of the run resulting in total Chinook estimates that exceeded the best estimates of the actual number of spawners passing the counting site. Causes of this bias are uncertain, but fish wheel position, river current pattern, or other similar environmental factors could be influencing Chinook migration patterns at this site. The historical proportion of Chinook salmon in the north bank fish wheel catches range between 0.01% and 5.1%. Some of the captured Chinook salmon were adipose fin clipped in the past, indicating they were probably from the enhanced Crooked Creek stock, a stream located about 1 mile downstream of the counting site. Not apportioning sonar counts to Chinook salmon likely caused little error in our estimate of sockeye salmon escapement. For the first time since 1980, no weir was operated on Bear Creek to provide accurate escapement numbers for the stream. To obtain an index of run strength, a ground survey was conducted on the lower 5.5 km of the stream and both live and dead fish were counted. We expected to count a greater number of fish in Bear Creek, but the stream was surveyed when spawning was well past the average peak (6 August) for sockeye salmon (T. Dodson, Biologist, Cook Inlet Aquaculture Association, Soldotna; personal communication). Approximately 80% of the count on the first survey (16 August) were dead fish, and many of the dead fish were badly decomposed. The crew was unable to survey Bear Creek the following week because of the Glacier Creek fire. A subsequent survey 3 weeks later produced substantially fewer fish than the first trip within a short section of the creek. Because of the lateness of the first survey and the early arrival of sockeye salmon in the Kasilof River in June, it's likely that a large portion of fish were missed. The Moose Creek and Glacier Flats ground survey counts were the highest ground survey counts ever recorded. Portions of Nikolai Creek, Seepage Creek, Clear Creek, Crystal Creek and a nameless Creek within 1 mile of Clear Creek were also surveyed (one time only). Approximately two-thirds of the fish in these streams were dead at the time the survey was conducted. A linear regression analysis was not conducted of Bear Creek escapement on Kasilof River sonar counts including 2004 data, because not enough ground survey data points were available to make a credible analysis.

## **CRESCENT RIVER**

The sockeye salmon run estimate for 2004 was the fifth highest on record since sonar began operating on the Crescent River in 1979. The 1985 estimate of 128,628 is the highest on record.

There were concerns that flooding in the fall of 2003 and subsequent changes in the river profile at the sonar site would affect fish behavior and the operation of sonar gear. The resulting change in the river at the sonar site turned out to have a positive effect and may have improved the accuracy of counts. A gravel bar developed along the north bank where no gravel bar existed prior to the high water event, eliminating submerged gravel bars that existed midriver prior to the flooding. A narrow, shallow channel next to the north bank now exists and was thought to be a potential problem at high water unless cordoned off by a small weir. In the summer of 2004, dry weather kept river levels at manageable depths, so this shallow channel was not a factor in project operations. The south bank still provided a short counting range but the north bank now

had a longer slope consisting of fist-sized rocks and cobbles. We were confident that the majority of fish passed well within the ensonified range of the counters on both banks. Our counting ranges on both banks remained relatively constant throughout the entire operational period, varying only by about 1 m on either bank. Fish distribution by bank was no different than the distribution recorded in 2003.

Prior to 1993, fish were collected for species composition with drifted gillnets and a fish trap. The installation of a fish wheel at Crescent River (1993) provided a larger sample size and probably reduced the degree of size selectivity inherent to the gear types formerly used. Dolly Varden char had not appeared in the catch in previous years, but appeared in the fish wheel catch in 1993 (Davis and King 1994). Because the char captured at Crescent River were of adequate size (>350 mm) to meet target detection sonar thresholds, they were included in the apportionment of daily sonar counts after 1993 (Davis and King 1993). We also concluded that these fish were migratory based on morphological characteristics and results of marking all Dolly Varden char captured in 1993 through 1995. Of the Dolly Varden char marked in 1993 through 1995, none were recaptured. The high proportion (18.6% or 548 fish) of char in the fish wheel catch in 1994 led us to believe that the sockeye salmon escapement may have historically been overestimated. The proportion of char in 1993 (0.5%) and 1995 (0.7%) may be more indicative of the degree of historical over apportionment to sockeye salmon than the high proportion observed in 1994 (Davis and King 1994, 1996). In 2004 the fish wheel catch resulted in 2,974 counts being apportioned to Dolly Varden char, or 2.7 % of the total count. The fish wheel catch of Chinook and coho salmon was insignificant (>1%), and the chum and pink salmon catches were increasing when counting operations ceased.

## **YENTNA RIVER**

Sockeye salmon escapement in 2004 was the fourth lowest on record since sonar operations began on the Yentna River in 1981. However, apportioned coho salmon counts were historically the highest on record estimated through 12 August.

Run timing was typical for the Yentna River. The south bank had a significantly higher passage of salmon than the north bank, which is in accord with the historical trend. However, we noticed that the proportion of salmon migrating along the south bank was more pronounced than in recent years. Fish wheel catch data also supports a strong south bank preference for migrating fish.

King and Tarbox (1990) indicated sockeye and pink salmon exhibited differential run timing on a daily basis in the Yentna River. They found that sockeye salmon were proportionally higher in the fish wheel catches from 1200 to 2400 hours, and pink salmon were more frequently captured from 0600 to 1200 hours. This observation identified a potential source of error in the use of total daily-adjusted fish wheel catches to apportion sonar counts. To evaluate this potential bias, fish wheels were operated in three 6-hour time blocks over a 24-hour period in 1993 and 1994. Analyses of data from these 2 years indicated the degree of bias did not justify the additional expense of operating the fish wheels in this manner, so this method of fish wheel operation was discontinued in 1995. Because of the findings of King and Tarbox, both fish wheels were operated for 4 to 8 hours per day (depending on catch rate), three times per day (once in the morning, afternoon and evening).

Migratory timing information and escapement estimates should not be considered reliable for pink, chum and coho salmon, because migration continued past the end of sonar operations in

2004. Our fish wheels were catching appreciable numbers of sockeye, pink and coho salmon by mid July, just 1 week after the start of counting operations, indicating a substantial amount of overlap in the run timing of these 3 species. Appreciable numbers of chum salmon didn't show in the fish wheel catches until August. Migrating Chinook salmon were not as bank-oriented as sockeye salmon and may have passed outside the ensonified areas and avoided capture by the fish wheel.

River levels were typically variable and did not halt any aspect of sonar operations in 2004. We were concerned about our operation and fish behavior during 2 days in late July, when the river rose about 3 m. Data collected by Barrett (1985) utilizing marked fish indicated that upstream migration in this system is slowed during episodic high flow events. It is likely that water levels did not have much of an impact on the salmon migration in the Yentna River in 2004. Our counting operations on the Yentna River ceased on 12 August.

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## **TABLES AND FIGURES**

**Table 1.**—Estimated sockeye salmon escapement recorded by side-scanning sonar in the Kenai, Kasilof, Crescent, Yentna, and Susitna rivers 1978–2004.

Year	System					Susitna/Yentna	
	Kenai <sup>a</sup>	Kasilof <sup>b</sup>	Crescent	Yentna	Susitna		
1978	398,900	116,600	<sup>c</sup>	<sup>c</sup>	94,400		
1979	285,020	152,179	86,654	<sup>c</sup>	156,980		
1980	464,038	184,260 <sup>d</sup>	90,863	<sup>c</sup>	190,866		
1981	407,639	256,625	41,213	139,401	340,232		
1982	619,831	180,239	58,957	113,847		189,772 <sup>e</sup>	215,856 <sup>f</sup> - 265,332 <sup>g</sup>
1983	630,340	210,271	92,122	104,414	112,314		176,114 <sup>g</sup>
1984	344,571	231,685	118,345	149,375			194,480 <sup>h</sup> - 279,446 <sup>g</sup>
1985	502,820	505,049	128,628	107,124	<sup>i</sup>		227,924 <sup>g</sup>
1986	501,157	275,963	20,385 <sup>j</sup>	92,076			
1987	1,596,871	249,250	120,219	66,054			
1988	1,021,469	204,000 <sup>k</sup>	57,716	52,330			
1989	1,599,959	158,206	71,064	96,269			
1990	659,520	144,136	52,238	140,290			
1991	647,597	238,269	44,578	109,632			
1992	994,798	184,178	58,229	66,074			
1993	813,617	149,939	37,556	141,694			
1994	1,003,446	205,117	30,355	128,032			
1995	630,447	204,935	52,311	121,220			
1996	797,847	249,944	28,729	90,660			
1997	1,064,818	266,025	70,768	157,822			
1998	767,558	273,213	62,257	119,623			
1999	803,379	312,587	66,519	99,029			
2000	624,578	256,053	56,599	133,094			
2001	650,036	307,570	78,081	83,532			
2002	957,924	226,682	62,833	78,591			
2003	1,181,309	359,633	122,457	180,813			
2004	1,385,981	577,581	103,201	71,281			

<sup>a</sup> Includes counts after 22 June (1978–1987) and after 1 July (1988–2002).

<sup>b</sup> Includes counts or estimates prior to 15 June (1983–1988) and post enumeration estimates (1981–1986).

<sup>c</sup> No counts conducted.

<sup>d</sup> Escapement estimate revised 11/03 (estimate was 187,154).

<sup>e</sup> Combines sonar counts from Yentna and Sunshine stations.

<sup>f</sup> Sonar counts from mark/recapture estimates from Sunshine Station and west bank of the Susitna River.

<sup>g</sup> Counts from Yentna Station and mark–recapture estimate from Sunshine Station.

<sup>h</sup> Combined counts from Yentna Station and east bank, Susitna Station.

<sup>i</sup> Sonar counts discontinued.

<sup>j</sup> Counts through 16 July only.

<sup>k</sup> Combined counts from weirs on Bear and Glacier Flat Creeks and surveys of remaining spawning streams (sonar count was 151,856.)

**Table 2.**—Estimated salmon escapement into the Kenai River, 1 July through 18 August, 2004.

Date	Sockeye		Pink		Coho		Chinook	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
1-Jul	3,164	3,164	0	0	0	0	0	0
2-Jul	3,427	6,591	0	0	0	0	0	0
3-Jul	3,560	10,151	0	0	0	0	0	0
4-Jul	2,358	12,509	0	0	0	0	0	0
5-Jul	1,825	14,334	0	0	0	0	0	0
6-Jul	2,045	16,379	0	0	0	0	0	0
7-Jul	3,748	20,127	0	0	0	0	0	0
8-Jul	6,013	26,140	0	0	0	0	0	0
9-Jul	2,835	28,975	0	0	0	0	0	0
10-Jul	2,688	31,663	0	0	0	0	0	0
11-Jul	2,224	33,887	0	0	0	0	0	0
12-Jul	3,241	37,128	0	0	0	0	0	0
13-Jul	6,016	43,144	0	0	0	0	0	0
14-Jul	114,106	157,250	0	0	0	0	0	0
15-Jul	138,212	295,462	0	0	0	0	0	0
16-Jul	94,920	390,382	0	0	0	0	0	0
17-Jul	48,378	438,760	0	0	0	0	0	0
18-Jul	32,094	470,854	0	0	0	0	0	0
19-Jul	20,657	491,511	0	0	0	0	0	0
20-Jul	10,189	501,700	0	0	0	0	0	0
21-Jul	30,484	532,184	0	0	0	0	0	0
22-Jul	95,470	627,654	0	0	0	0	0	0
23-Jul	29,246	656,900	0	0	0	0	0	0
24-Jul	32,187	689,087	0	0	0	0	0	0
25-Jul	34,719	723,806	0	0	0	0	0	0
26-Jul	41,591	765,397	0	0	0	0	0	0
27-Jul	35,116	800,513	0	0	0	0	0	0
28-Jul	42,010	842,523	0	0	0	0	0	0
29-Jul	35,212	877,735	0	0	0	0	0	0
30-Jul	25,221	902,956	0	0	0	0	0	0
31-Jul	19,498	922,454	0	0	0	0	0	0
1-Aug	13,483	935,937	0	0	0	0	0	0
2-Aug	17,838	953,775	0	0	0	0	0	0
3-Aug	39,009	992,784	0	0	0	0	0	0
4-Aug	43,784	1,036,568	0	0	0	0	0	0
5-Aug	29,016	1,065,584	0	0	0	0	0	0
6-Aug	27,525	1,093,109	0	0	0	0	0	0
7-Aug	21,543	1,114,652	2,154	2,154	0	0	359	359
8-Aug	12,077	1,126,729	2,300	4,454	719	719	0	359
9-Aug	30,261	1,156,990	2,947	7,401	590	1,309	0	359
10-Aug	46,407	1,203,397	4,194	11,595	525	1,834	262	621
11-Aug	44,475	1,247,872	6,671	18,266	4,448	6,282	0	621
12-Aug	46,103	1,293,975	10,169	28,435	3,390	9,672	339	960
13-Aug	29,391	1,323,366	9,197	37,632	3,999	13,671	200	1,160
14-Aug	20,115	1,343,481	5,969	43,601	3,758	17,429	221	1,381
15-Aug	15,686	1,359,167	4,067	47,668	2,324	19,753	0	1,381
16-Aug	9,918	1,369,085	4,959	52,627	2,216	21,969	105	1,486
17-Aug	10,454	1,379,539	30,580	83,207	3,355	25,324	312	1,798
18-Aug	6,442	1,385,981	34,354	117,561	12,882	38,206	179	1,977
Proportion:		89.8%		7.6%		2.5%		0.1%
Total count:	1,543,725							

**Table 3.**—Cumulative proportion by date of sockeye salmon counts recorded in the Kenai River 1979–2004.

Date	Cumulative Proportion 1979-1992 <sup>a</sup>													
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
22-Jun	0.001	0.002	0.001	0.002	0.001	0.003	0.001	0.000	0.001					
23-Jun	0.003	0.004	0.001	0.003	0.001	0.007	0.002	0.002	0.002					
24-Jun	0.006	0.005	0.002	0.004	0.002	0.010	0.003	0.003	0.002					
25-Jun	0.008	0.006	0.003	0.004	0.003	0.012	0.004	0.003	0.002					
26-Jun	0.010	0.008	0.004	0.005	0.004	0.013	0.005	0.004	0.003					
27-Jun	0.012	0.008	0.006	0.006	0.005	0.015	0.006	0.004	0.004					
28-Jun	0.013	0.009	0.007	0.007	0.006	0.017	0.007	0.006	0.005					
29-Jun	0.015	0.010	0.008	0.007	0.006	0.018	0.009	0.006	0.006					
30-Jun	0.017	0.011	0.009	0.008	0.007	0.021	0.010	0.007	0.007					
01-Jul	0.019	0.012	0.010	0.009	0.007	0.023	0.014	0.008	0.007	0.000	0.000	0.001	0.001	0.003
02-Jul	0.020	0.013	0.012	0.010	0.008	0.024	0.016	0.009	0.008	0.000	0.001	0.001	0.003	0.005
03-Jul	0.023	0.014	0.012	0.011	0.008	0.025	0.017	0.010	0.008	0.001	0.001	0.003	0.004	0.008
04-Jul	0.025	0.015	0.013	0.011	0.009	0.027	0.019	0.011	0.008	0.001	0.001	0.010	0.005	0.010
05-Jul	0.030	0.016	0.013	0.012	0.009	0.029	0.021	0.012	0.009	0.001	0.002	0.019	0.012	0.011
06-Jul	0.050	0.016	0.014	0.012	0.009	0.031	0.024	0.013	0.009	0.002	0.006	0.029	0.018	0.014
07-Jul	0.067	0.017	0.016	0.013	0.010	0.032	0.026	0.014	0.009	0.003	0.011	0.036	0.019	0.015
08-Jul	0.077	0.017	0.018	0.013	0.010	0.036	0.030	0.014	0.010	0.003	0.014	0.044	0.020	0.016
09-Jul	0.082	0.018	0.064	0.015	0.011	0.044	0.032	0.015	0.010	0.003	0.017	0.049	0.022	0.018
10-Jul	0.086	0.018	0.186	0.016	0.013	0.054	0.033	0.015	0.010	0.011	0.021	0.050	0.024	0.020
11-Jul	0.089	0.019	0.262	0.016	0.017	0.063	0.036	0.015	0.010	0.063	0.024	0.052	0.028	0.022
12-Jul	0.092	0.020	0.366	0.017	0.021	0.067	0.038	0.016	0.011	0.088	0.046	0.054	0.034	0.043
13-Jul	0.095	0.020	0.463	0.019	0.041	0.071	0.039	0.018	0.015	0.141	0.100	0.057	0.037	0.111
14-Jul	0.100	0.021	<b>0.512</b>	0.021	0.085	0.073	0.048	0.039	0.017	0.185	0.162	0.060	0.038	0.175
15-Jul	0.126	0.027	0.549	0.026	0.174	0.076	0.066	0.051	0.033	0.222	0.211	0.064	0.041	0.202
16-Jul	0.170	0.057	0.559	0.047	0.242	0.112	0.104	0.061	0.043	0.274	0.242	0.068	0.046	0.218
17-Jul	0.238	0.310	0.572	0.067	0.297	0.173	0.111	0.073	0.052	0.303	0.290	0.138	0.058	0.229
18-Jul	0.342	0.489	0.605	0.182	0.437	0.307	0.114	0.086	0.058	0.340	0.347	0.279	0.086	0.246
19-Jul	<b>0.504</b>	<b>0.607</b>	0.667	0.322	<b>0.566</b>	0.363	0.115	0.102	0.069	0.375	0.367	0.344	0.136	0.255
20-Jul	0.670	0.777	0.747	0.474	0.695	0.406	0.116	0.113	0.141	0.409	0.421	0.400	0.194	0.284
21-Jul	0.795	0.899	0.803	<b>0.563</b>	0.766	0.464	0.120	0.174	0.235	0.464	<b>0.500</b>	0.457	0.225	0.334
22-Jul	0.840	0.920	0.835	0.598	0.796	<b>0.555</b>	0.178	0.269	0.319	<b>0.569</b>	0.566	0.473	0.261	0.370
23-Jul	0.872	0.926	0.848	0.642	0.813	0.652	0.291	0.322	0.406	0.679	0.639	<b>0.518</b>	0.308	0.402
24-Jul	0.888	0.932	0.864	0.681	0.833	0.720	0.463	0.382	0.488	0.744	0.679	0.576	0.376	0.451
25-Jul	0.913	0.935	0.876	0.722	0.844	0.781	<b>0.574</b>	0.471	<b>0.570</b>	0.785	0.698	0.675	0.424	<b>0.535</b>
26-Jul	0.925	0.938	0.894	0.752	0.861	0.833	0.693	<b>0.618</b>	0.640	0.812	0.729	0.719	0.477	0.612
27-Jul	0.931	0.944	0.911	0.842	0.865	0.867	0.753	0.730	0.694	0.827	0.774	0.729	<b>0.546</b>	0.678
28-Jul	0.934	0.947	0.921	0.883	0.872	0.897	0.822	0.783	0.740	0.836	0.806	0.744	0.637	0.740
29-Jul	0.939	0.952	0.932	0.903	0.878	0.913	0.864	0.816	0.766	0.844	0.831	0.796	0.711	0.798
30-Jul	0.945	0.955	0.940	0.918	0.882	0.921	0.897	0.862	0.790	0.847	0.846	0.846	0.772	0.830
31-Jul	0.950	0.957	0.948	0.931	0.891	0.928	0.911	0.897	0.831	0.850	0.856	0.867	0.838	0.843
01-Aug	0.953	0.960	0.955	0.940	0.906	0.933	0.919	1.000	0.871	0.854	0.875	0.879	0.885	0.854
02-Aug	0.955	0.962	0.964	0.946	0.916	0.937	0.922		0.899	0.859	0.888	0.896	0.912	0.864
03-Aug	0.958	0.964	1.000	0.951	0.920	0.943	0.925		0.917	0.863	0.899	0.932	0.927	0.871
04-Aug	0.961	0.966		0.955	0.934	0.948	0.929		0.930	0.873	0.908	0.963	0.934	0.877
05-Aug	0.965	0.968		1.000	0.964	0.956	0.931		0.943	0.894	0.916	0.978	0.939	0.888
06-Aug	0.968	0.970			0.977	0.960	0.935		0.953	0.914	0.930	0.991	0.946	0.903
07-Aug	0.971	0.972			0.983	0.963	0.938		0.962	0.933	0.949	1.000	0.953	0.915

-continued-

**Table 3.**—Page 2 of 4.

Date	Cumulative Proportion 1979-1992 <sup>a</sup>													
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
08-Aug	0.973	0.974			0.989	0.969	0.943		0.967	0.944	0.960		0.967	0.930
09-Aug	0.977	0.975			0.993	1.000	0.947		0.972	0.953	0.966		0.979	0.942
10-Aug	0.981	0.978			0.996		0.953		0.979	1.000	0.974		0.988	0.955
11-Aug	0.987	0.982			0.999		0.960		0.985		0.985		0.995	0.969
12-Aug	0.993	0.985			1.000		1.000		0.988		0.990		1.000	0.981
13-Aug	0.995	0.992							0.991		0.994			1.000
14-Aug	0.996	0.993							0.998		0.998			
15-Aug	1.000	0.993							1.000		1.000			
16-Aug		0.995												
17-Aug		0.996												
18-Aug		0.997												
19-Aug		0.997												
21-Aug		0.997												
21-Aug		0.998												
22-Aug		0.998												
23-Aug		0.999												
24-Aug		0.999												
25-Aug		0.999												
26-Aug		0.999												
27-Aug		0.999												
28-Aug		1.000												
Midpoint	19-Jul	19-Jul	14-Jul	21-Jul	19-Jul	10-Jul	25-Jul	26-Jul	25-Jul	22-Jul	21-Jul	23-Jul	27-Jul	25-Jul
Average midpoint (1979–2003)				22-Jul										
No. days for 80% <sup>b</sup>	12	6	18	12	18	14	16	12	14	25	23	18	15	25
Average (1979–2003)			21											

—continued—

**Table 3.**–Page 3 of 4.

Date	Cumulative Proportion 1993-2004 <sup>a</sup>											
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
22-Jun												
23-Jun												
24-Jun												
25-Jun												
26-Jun												
27-Jun												
28-Jun												
29-Jun												
30-Jun												
01-Jul	0.004		0.000	0.001	0.003	0.002	0.001	0.003	0.002	0.005	0.005	0.002
02-Jul	0.010	0.000	0.001	0.002	0.008	0.007	0.003	0.005	0.010	0.013	0.007	0.005
03-Jul	0.013	0.001	0.001	0.003	0.014	0.010	0.004	0.011	0.017	0.018	0.011	0.007
04-Jul	0.019	0.001	0.002	0.005	0.021	0.013	0.005	0.016	0.023	0.027	0.017	0.009
05-Jul	0.037	0.002	0.003	0.007	0.029	0.017	0.006	0.019	0.028	0.056	0.021	0.010
06-Jul	0.058	0.003	0.007	0.010	0.034	0.025	0.008	0.023	0.033	0.083	0.024	0.012
07-Jul	0.061	0.007	0.011	0.012	0.037	0.033	0.012	0.029	0.038	0.139	0.027	0.015
08-Jul	0.067	0.011	0.013	0.017	0.044	0.041	0.016	0.035	0.046	0.177	0.031	0.019
09-Jul	0.081	0.013	0.016	0.019	0.047	0.052	0.022	0.047	0.056	0.201	0.037	0.021
10-Jul	0.085	0.016	0.019	0.021	0.068	0.065	0.026	0.060	0.063	0.221	0.045	0.023
11-Jul	0.087	0.019	0.021	0.025	0.117	0.071	0.029	0.068	0.070	0.234	0.066	0.024
12-Jul	0.092	0.021	0.023	0.029	0.171	0.075	0.032	0.075	0.075	0.241	0.117	0.027
13-Jul	0.101	0.023	0.025	0.032	0.233	0.078	0.034	0.115	0.080	0.249	0.151	0.031
14-Jul	0.210	0.025	0.032	0.065	0.292	0.083	0.039	0.260	0.096	0.260	0.176	0.113
15-Jul	0.301	0.032	0.062	0.213	0.309	0.088	0.049	0.386	0.141	0.285	0.194	0.213
16-Jul	0.400	0.062	0.073	0.347	0.346	0.102	0.054	0.459	0.187	0.323	0.270	0.282
17-Jul	0.485	0.073	0.122	0.402	0.416	0.150	0.067	0.496	0.251	0.352	0.362	0.317
18-Jul	<b>0.517</b>	0.122	0.164	0.435	0.495	0.183	0.097	<b>0.545</b>	0.295	0.398	0.441	0.340
19-Jul	0.533	0.164	0.190	0.468	<b>0.501</b>	0.209	0.138	0.584	0.348	0.497	<b>0.501</b>	0.355
20-Jul	0.557	0.190	0.232	0.498	0.522	0.231	0.164	0.604	0.389	<b>0.562</b>	0.528	0.362
21-Jul	0.582	0.232	0.269	<b>0.531</b>	0.542	0.246	0.200	0.624	0.411	0.596	0.555	0.384
22-Jul	0.599	0.269	0.298	0.555	0.552	0.272	0.249	0.643	0.434	0.621	0.612	0.453
23-Jul	0.612	0.298	0.343	0.592	0.583	0.333	0.308	0.673	0.466	0.648	0.668	0.474
24-Jul	0.624	0.343	0.399	0.640	0.648	0.392	0.360	0.714	<b>0.523</b>	0.676	0.714	0.497
25-Jul	0.635	0.399	0.420	0.713	0.659	0.434	0.447	0.752	0.597	0.702	0.740	<b>0.522</b>
26-Jul	0.670	0.420	0.428	0.755	0.666	0.460	<b>0.515</b>	0.787	0.676	0.735	0.766	0.552
27-Jul	0.720	0.428	0.432	0.774	0.670	0.490	0.589	0.816	0.730	0.747	0.787	0.578
28-Jul	0.748	0.432	0.440	0.786	0.674	<b>0.544</b>	0.647	0.842	0.759	0.758	0.820	0.608
29-Jul	0.773	0.440	0.450	0.794	0.681	0.602	0.685	0.868	0.782	0.771	0.844	0.633
30-Jul	0.795	0.450	0.469	0.801	0.688	0.644	0.713	0.882	0.809	0.783	0.860	0.651
31-Jul	0.814	0.469	<b>0.525</b>	0.825	0.694	0.694	0.731	0.893	0.832	0.797	0.875	0.666
01-Aug	0.827	<b>0.525</b>	0.620	0.854	0.698	0.766	0.755	0.905	0.854	0.810	0.891	0.675
02-Aug	0.845	0.620	0.673	0.877	0.701	0.855	0.779	0.913	0.877	0.825	0.911	0.688
03-Aug	0.858	0.673	0.696	0.898	0.705	0.871	0.796	0.927	0.894	0.841	0.928	0.716
04-Aug	0.866	0.696	0.713	0.916	0.708	0.882	0.814	0.943	0.914	0.858	0.941	0.748
05-Aug	0.879	0.713	0.728	0.928	0.712	0.894	0.829	0.955	0.928	0.876	0.950	0.769
06-Aug	0.908	0.728	0.740	0.938	0.724	0.914	0.845	0.967	0.942	0.891	0.965	0.789
07-Aug	0.927	0.740	0.748	0.953	0.737	0.929	0.869	0.976	0.957	0.907	0.976	0.804

-continued-

**Table 3.**–Page 4 of 4.

Date	Cumulative Proportion 1993-2004 <sup>a</sup>											
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
08-Aug	0.938	0.748	0.757	0.967	0.758	0.943	0.893	0.984	0.971	0.927	0.984	0.813
09-Aug	0.959	0.757	0.771	0.982	0.774	0.953	0.912	0.991	0.978	0.952	0.992	0.835
10-Aug	0.970	0.771	0.791	0.991	0.784	0.962	0.921	1.000	0.986	0.971	1.000	0.868
11-Aug	0.979	0.791	0.814	1.000	0.805	0.974	0.930		0.989	0.984		0.900
12-Aug	0.989	0.814	0.835		0.821	0.986	0.944		0.998	0.990		0.934
13-Aug	1.000	0.835	0.857		0.841	1.000	0.951		1.000	0.996		0.955
14-Aug		0.857	0.874		0.856		0.962			1.000		0.969
15-Aug		0.874	0.896		0.868		0.976					0.981
16-Aug		0.896	0.914		0.877		0.984					0.988
17-Aug		0.914	0.926		0.893		0.992					0.995
18-Aug		0.926	0.942		0.906		1.000					1.000
19-Aug		0.942	0.963		0.919							
21-Aug		0.963	0.977		0.932							
21-Aug		0.977	0.985		0.944							
22-Aug		0.985	0.992		0.956							
23-Aug		0.992	1.000		0.970							
24-Aug		1.000			0.985							
25-Aug					1.000							
26-Aug												
27-Aug												
28-Aug												
Midpoint	18-Jul	01-Aug	31-Jul	21-Jul	19-Jul	28-Jul	26-Jul	18-Jul	24-Jul	20-Jul	19-Jul	25-Jul
Average midpoint (1979–2003)				22-Jul								
No. days for 80% <sup>b</sup>	26	31	31	21	39	22	22	20	21	32	22	29
Average (1979–2003)			21									

Note: Bold numbers represent the midpoint of the run.

<sup>a</sup> Proportion accrued on last day (1981, 1982, 1984–1986, 1988) represents that portion of the escapement estimated to have entered the river after termination of counting operations.

<sup>b</sup> Inclusive dates: date proportion of escapement reached 10% through date proportion of escapement reached 90%.

**Table 4.**—Distribution of sockeye salmon escapement by bank (% of total count) recorded by side-scanning sonar in the Kenai, Kasilof, Crescent, and Yentna rivers 1979–2004.

Year	Kenai River		Kasilof River		Crescent River		Yentna River	
	North Bank	South Bank	North Bank	South Bank	North Bank	South Bank	North Bank	South Bank
1979	72	28	53	47				
1980	61	39	52	48	49	51		
1981	72	28	69	31	57	43		
1982	39	61	73	27	54	46		
1983	42	58	51	49	39	61		
1984	65	35	56	44	71	28		
1985	54	46	70	30	70	30	9	91
1986	62	38	57	43	84	16	32	68
1987	48	52	55	45	64	36	10	90
1988	47	53	32	68	53	47	8	92
1989	57	43	39	61	52	48	12	88
1990	62	38	29	71	44	56	2	98
1991	73	27	39	61	33	67	8	92
1992	60	40	45	55	56	44	5	95
1993	49	51	28	72	41	56	14	86
1994	52	48	47	53	65	35	8	92
1995	52	48	38	62	68	32	11	89
1996	54	46	61	39	68	32	21	79
1997	56	44	41	59	79	21	11	89
1998	55	45	36	64	70	30	49	51
1999	55	45	51	49	53	47	26	74
2000	64	36	51	49	63	37	22	78
2001	50	50	63	37	79	21	38	63
2002	49	51	48	52	74	26	25	75
2003	49	51	50	50	65	35	29	71
2004	49	51	43	57	64	36	6	94
Average	53	47	48	52	68	32	24	76

**Table 5.**—Fish distribution by sector (%) and average counting ranges (m) for both banks of the Kenai, Kasilof, Crescent, and Yentna rivers, 2004.

	Sector											
	1	2	3	4	5	6	7	8	9	10	11	12
<b>Kenai River</b>												
	North Bank											
Daily %	4%	27%	33%	17%	7%	3%	2%	2%	1%	1%	1%	1%
Cumulative %	4%	31%	64%	81%	88%	91%	93%	95%	96%	97%	98%	100%
Average (m):	1.3	2.7	4.0	5.4	6.7	8.1	9.4	10.7	12.1	13.4	14.8	16.1
Counting ranges:	9.1-21.9 m											
	South Bank											
Daily %	1%	14%	43%	14%	10%	5%	5%	3%	2%	1%	1%	1%
Cumulative %	1%	15%	58%	72%	82%	87%	93%	95%	97%	98%	99%	100%
Average (m):	0.5	1.0	1.4	1.9	2.4	2.9	3.3	3.8	4.3	4.8	5.2	5.7
Counting ranges:	4.3-7.0 m											
<b>Kasilof River</b>												
	North Bank											
Daily %	13%	12%	7%	14%	17%	16%	10%	6%	2%	1%	1%	1%
Cumulative %	13%	25%	33%	47%	64%	79%	89%	95%	97%	99%	99%	100%
Average (m):	0.6	1.2	1.8	2.4	3.0	3.7	4.3	4.9	5.5	6.1	6.7	7.3
Counting ranges:	3.0-18.3 m											
	South Bank											
Daily %	9%	17%	17%	20%	19%	8%	4%	2%	1%	1%	1%	1%
Cumulative %	9%	27%	44%	64%	83%	91%	94%	97%	98%	99%	100%	100%
Average (m):	0.9	1.8	2.7	3.6	4.5	5.4	6.2	7.1	8.0	8.9	9.8	10.7
Counting ranges:	4.9-24.4 m											
<b>Crescent River</b>												
	North Bank											
Sector %	15%	31%	28%	12%	6%	3%	2%	2%	1%	0%	1%	0%
Cumulative %	15%	46%	74%	86%	92%	95%	97%	98%	99%	99%	100%	100%
Average (m):	1.0	1.9	2.9	3.8	4.8	5.7	6.7	7.6	8.6	9.5	10.5	11.4
Counting ranges:	4.0-12.2 m											
	South Bank											
Sector %	27%	42%	25%	5%	1%	0%	0%	0%	0%	0%	0%	1%
Cumulative %	27%	68%	93%	98%	99%	99%	99%	100%	100%	100%	100%	100%
Average (m):	0.7	1.4	2.1	2.8	3.5	4.2	4.8	5.5	6.2	6.9	7.6	8.3
Counting ranges:	5.5-9.1 m											
<b>Yentna River</b>												
	North Bank											
Daily %	4%	26%	36%	21%	5%	2%	1%	1%	1%	2%	1%	1%
Cumulative %	4%	30%	66%	86%	91%	93%	94%	95%	97%	98%	99%	100%
Average (m):	0.7	1.4	2.2	2.9	3.6	4.3	5.0	5.7	6.5	7.2	7.9	8.6
Counting ranges:	7.0-11.0 m											
	South Bank											
Daily %	1%	10%	23%	27%	17%	11%	6%	3%	2%	1%	0%	0%
Cumulative %	1%	11%	34%	60%	77%	88%	94%	97%	99%	100%	100%	100%
Average (m):	0.6	1.2	1.8	2.3	2.9	3.5	4.1	4.7	5.3	5.8	6.4	7.0
Counting ranges:	6.2-8.5 m											

**Table 6.**—Daily fish wheel catch by species for the north bank of the Kenai River, 1 July through 18 August, 2004.

Date	Hours Open	Sockeye		Pink		Coho		Chinook		Trout <sup>a</sup>	
		Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
1-Jul	22.3	0	0	0	0	0	0	0	0	0	0
2-Jul	16.3	0	0	0	0	0	0	0	0	0	0
3-Jul	12.0	4	4	0	0	0	0	0	0	2	2
4-Jul	23.4	7	11	0	0	0	0	0	0	1	3
5-Jul	26.1	12	23	0	0	0	0	0	0	3	6
6-Jul	22.4	3	26	0	0	0	0	2	2	6	12
7-Jul	21.0	0	26	0	0	0	0	0	2	0	12
8-Jul	25.6	2	28	0	0	0	0	0	2	0	12
9-Jul	24.6	10	38	0	0	0	0	0	2	3	15
10-Jul	20.9	6	44	0	0	0	0	1	3	3	18
11-Jul	24.4	4	48	0	0	0	0	1	4	1	19
12-Jul	25.7	11	59	0	0	0	0	4	8	8	27
13-Jul	17.5	26	85	0	0	0	0	1	9	3	30
14-Jul	10.8	64	149	0	0	0	0	1	10	2	32
15-Jul	0.5	184	333	0	0	0	0	0	10	1	33
16-Jul	0.5	135	468	0	0	0	0	0	10	1	34
17-Jul	2.7	118	586	0	0	0	0	0	10	2	36
18-Jul	0.8	105	691	0	0	0	0	0	10	0	36
19-Jul	3.8	66	757	0	0	0	0	0	10	0	36
20-Jul	6.6	26	783	0	0	0	0	1	11	5	41
21-Jul	13.6	102	885	1	1	0	0	3	14	8	49
22-Jul	0.8	61	946	0	1	0	0	0	14	1	50
23-Jul	1.5	183	1,129	1	2	0	0	0	14	0	50
24-Jul	4.7	76	1,205	0	2	0	0	1	15	2	52
25-Jul	4.3	45	1,250	0	2	0	0	0	15	0	52
26-Jul	2.7	36	1,286	0	2	0	0	0	15	0	52
27-Jul	3.6	65	1,351	0	2	0	0	1	16	0	52
28-Jul	1.5	101	1,452	0	2	1	1	0	16	0	52
29-Jul	1.3	48	1,500	0	2	1	2	0	16	0	52

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Table 6.—Page 2 of 2.

Date	Hours Open	Sockeye		Pink		Coho		Chinook		Trout <sup>a</sup>	
		Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
30-Jul	1.3	78	1,578	1	3	0	2	0	16	0	52
31-Jul	1.8	35	1,613	0	3	0	2	0	16	0	52
1-Aug	3.5	33	1,646	0	3	0	2	0	16	0	52
2-Aug	4.5	27	1,673	0	3	0	2	2	18	2	54
3-Aug	2.3	82	1,755	0	3	0	2	0	18	0	54
4-Aug	0.3	41	1,796	1	4	0	2	0	18	0	54
5-Aug	6.5	86	1,882	2	6	0	2	2	20	1	55
6-Aug	12.0	89	1,971	3	9	2	4	0	20	0	55
7-Aug	10.0	60	2,031	6	15	0	4	1	21	2	57
8-Aug	15.7	84	2,115	16	31	5	9	0	21	1	58
9-Aug	6.3	154	2,269	15	46	3	12	0	21	1	59
10-Aug	6.1	177	2,446	16	62	2	14	1	22	4	63
11-Aug	5.5	80	2,526	12	74	8	22	0	22	1	64
12-Aug	11.2	136	2,662	30	104	10	32	1	23	2	66
13-Aug	5.9	147	2,809	46	150	20	52	1	24	4	70
14-Aug	6.0	91	2,900	27	177	17	69	1	25	1	71
15-Aug	6.8	135	3,035	35	212	20	89	0	25	2	73
16-Aug	5.8	94	3,129	47	259	21	110	1	26	4	77
17-Aug	5.9	134	3,263	392	651	43	153	4	30	2	79
18-Aug	2.5	36	3,299	192	843	72	225	1	31	1	80
Proportion:			73.7%		18.8%		5.0%		0.7%		1.8%
Total Catch:	4,478 fish										
Time Operated:	461.7 hours										
CPUE:	9.7 fish/hour										

<sup>a</sup> Other catch includes 49 Dolly Varden char and 31 rainbow trout (*O. Mykiss*). No chum salmon were caught.

**Table 7.**—Age composition of Kenai River sockeye salmon sampled from the Kenai River fish wheel, 1970–2004.

Year	Percentage Composition by Age Class <sup>a, b, c, d</sup>								Sample Size
	1.1	1.2	1.3	1.4	2.1	2.2	2.3	Other	
1970	0.0	10.0	17.0	0.0	26.0	25.0	15.0	6.0	225
1971	0.0	8.0	39.0	1.0	3.0	38.0	11.0	0.0	168
1972	0.0	21.0	34.0	0.0	0.0	23.0	20.0	0.0	403
1973	0.0	5.0	68.0	1.0	1.0	8.0	16.0	0.0	632
1974	2.0	18.0	46.0	0.0	3.0	18.0	12.0	0.0	295
1975	2.0	10.0	36.0	2.0	4.0	31.0	14.0	1.0	162
1976	1.0	46.0	20.0	0.0	2.0	22.0	8.0	1.0	948
1977	0.0	6.0	76.0	1.0	0.0	7.0	10.0	0.0	1,265
1978	0.0	2.5	86.7	0.0	0.0	4.9	5.4	0.0	811
1979	0.2	19.6	63.0	0.0	0.0	10.6	6.6	0.0	601
1980	6.1	35.4	36.7	0.0	0.9	14.4	6.5	0.0	557
1981	0.0	19.7	66.4	0.0	0.5	7.9	5.3	0.2	624
1982	0.1	5.8	87.5	0.0	0.0	2.9	3.7	0.0	1,787
1983	0.3	8.4	79.0	0.3	0.5	2.2	8.9	0.4	1,765
1984	0.0	23.1	37.8	3.6	0.5	13.2	19.5	2.3	2,067
1985	0.1	15.9	56.4	0.3	0.1	14.7	11.4	1.1	2,201
1986	0.0	31.8	39.5	0.7	0.3	8.2	18.0	1.5	789
1987	0.0	12.8	78.4	0.1	0.0	3.2	5.2	0.3	745
1988	0.3	11.6	74.2	0.4	0.2	3.1	10.2	0.0	1,420
1989	0.2	5.6	26.7	0.9	0.8	7.6	57.4	0.8	1,587
1990	0.6	21.6	41.4	0.6	0.3	13.7	21.1	0.7	1,513
1991	0.1	48.2	31.6	0.2	0.4	5.7	11.4	2.4	2,502
1992	0.0	2.7	79.9	0.2	0.3	5.9	11.0	0.0	1,338
1993	0.3	12.2	30.5	2.6	6.3	6.4	41.2	0.5	2,088
1994	0.3	6.6	61.1	0.8	0.8	17.8	12.1	0.5	1,341
1995	0.3	31.9	26.4	0.4	2.4	6.6	31.3	0.7	712
1996	0.0	10.8	75.4	0.3	0.7	6.1	5.4	1.3	684
1997	0.1	7.6	75.2	0.4	0.4	2.8	13.0	0.5	963
1998	0.3	27.1	40.7	1.3	6.6	9.6	13.9	0.5	700
1999	0.0	15.1	55.4	0.4	1.2	16.8	9.6	1.5	733
2000	0.0	14.5	57.3	1.1	1.6	9.1	14.3	2.1	560
2001	0.3	10.8	68.9	0.8	1.5	8.3	9.2	0.2	601
2002	0.0	23.0	58.4	0.7	0.7	10.6	6.1	0.5	2,441
2003	0.0	14.4	57.9	0.4	0.1	8.0	18.7	0.5	1,555
2004	0.0	10.1	69.1	0.2	0.2	8.2	11.1	1.0	1,275
1970–2003									
Average	0.4	16.6	53.8	0.6	1.9	11.5	14.2	0.8	1,068

<sup>a</sup> Percentages weighted by total numbers in the escapement: 1978 (Bethe et al. 1980), 1979–1982, 1984–2002.

<sup>b</sup> 1978–1997 source: D. Waltemyer, Commercial Fisheries Biologist, ADF&G, Soldotna; personal communication.

<sup>c</sup> 1998–2004 source: T. Tobias, Commercial Fisheries Technician, ADF&G, Soldotna; personal communication.

<sup>d</sup> 2002 corrections made by T. Tobias.

**Table 8.**—Average length composition of the major age classes of sockeye salmon sampled from the Kenai River, 1980–2004.

Year	Age Class	Male		Female		Ratio of Males to Females
		Average Length (mm)	Sample Size	Average Length (mm)	Sample Size	
1980	1.2	482	168	494	100	1.7:1
1981		493	85	513	73	1.2:1
1982		483	70	505	32	2.2:1
1983		524	25	520	30	0.8:1
1984		474	280	473	196	1.4:1
1985		492	184	490	186	1.0:1
1986		488	155	492	96	1.6:1
1987		514	39	503	56	0.7:1
1988		522	79	511	84	0.9:1
1989		493	114	494	92	1.2:1
1990		474	168	478	127	1.3:1
1991		488	613	497	577	1.1:1
1993		474	123	481	132	0.9:1
1994		452	46	462	42	1.1:1
1995		492	116	487	111	1.0:1
1996		507	47	519	27	1.7:1
1998		483	95	494	95	1.0:1
1999		490	72	488	39	1.9:1
2000		513	47	513	43	1.1:1
2001		522	35	507	30	1.2:1
2002		503	306	502	256	1.2:1
2003		483	116	466	117	1:1
2004		497	64	482	65	1:1
1980–2003						
Average		493	136	495	116	1.2:1
1980	1.3	580	180	561	192	0.9:1
1981		590	290	569	430	0.7:1
1982		596	723	572	841	0.9:1
1983		598	215	577	269	0.8:1
1984		582	385	559	395	1.0:1
1985		575	496	552	824	0.6:1
1986		584	112	564	200	0.6:1
1987		605	183	586	401	0.5:1
1988		598	428	572	624	0.7:1
1989		600	831	575	881	0.9:1
1990		586	358	559	318	1.1:1
1991		561	357	539	441	0.8:1
1992		572	370	547	714	0.5:1
1993		583	247	556	390	0.6:1
1994		579	367	552	452	0.8:1
1995		584	81	564	107	0.8:1
1996		607	243	589	273	0.9:1
1997		593	327	582	352	0.9:1

-continued-

**Table 8.**—Page 2 of 2.

Year	Age Class	Male		Female		Ratio of Males to Females
		Average Length (mm)	Sample Size	Average Length (mm)	Sample Size	
1998		577	146	547	139	1.1:1
1999		600	202	576	204	1.0:1
2000	1.3	605	159	584	165	1.0:1
2001		596	196	577	218	0.9:1
2002		606	665	580	760	0.9:1
2003		593	387	574	504	0.8:1
2004		585	396	569	485	0.8:1
1980–2003						
Average		590	340	567	431	0.8:1
1984	2.2	505	116	508	159	0.7:1
1985		513	132	513	196	0.7:1
1994		481	67	488	171	0.4:1
1998		501	28	507	39	0.7:1
1999		517	38	512	85	0.5:1
2002		515	117	513	142	0.8:1
2003		514	45	515	73	0.6:1
2004		513	34	512	71	0.5:1
1984–2003						
Average		507	78	508	124	0.6:1
1980	2.3	589	67	579	80	0.8:1
1982		598	46	580	21	2.2:1
1983		595	25	582	36	0.7:1
1984		570	210	557	192	1.1:1
1985		570	106	555	129	0.8:1
1986		585	52	568	89	0.6:1
1988		596	53	577	92	0.6:1
1989		600	112	579	108	1.0:1
1990		589	177	568	132	1.3:1
1991		572	153	543	139	1.1:1
1992		569	46	546	88	0.5:1
1993		583	357	560	503	0.7:1
1994		578	73	551	89	0.8:1
1995		588	114	569	109	1.1:1
1997		600	52	576	73	0.7:1
1998		574	48	559	49	1.0:1
2000		603	44	583	41	1.1:1
2002		604	75	579	74	1:1
2003		594	135	574	163	0.8:1
2004		596	71	566	71	1:1
1980–2003						
Average		587	102	568	116	0.9:1
2004 Summary						
All Ages		572	578	555	697	0.8:1

*Note:* Lengths measured from mid-eye to tail fork.

*Source:* 1980–1997 source D. Waltemyer, Commercial Fisheries Biologist, ADF&G, Soldotna; personal communication. 1998–2004 source T. Tobias, Commercial Fisheries Technician, ADF&G, Soldotna; personal communication.

**Table 9.**—Late-run sockeye salmon escapement counts in 8 index areas, Kenai River drainage 1969–2004.

Year	Railroad	Johnson	Carter-	Ptarmigan	Tern	Russian River <sup>a</sup>			Total Index Area Escapement		
	Creek <sup>b</sup>	Creek <sup>b</sup>	Moose Creek <sup>b,c</sup>	Creek <sup>b</sup>	(Mud) Lake <sup>b,d</sup>	Hidden Lake <sup>f</sup>	Above Weir	Below Weir			
Method:	ground	ground	ground	ground	ground	weir	ground	weir	ground		
1969	100	75	598		437		487	500	28,872	1,100	32,169
1970	99	118	348		561		200	323	26,200	222	28,071
1971	194	160	3,201	45	1,370		808	1,958	54,421	11,442	73,599
1972	700	150	3,400		1,200			4,956	79,115	7,113	96,634
1973	521	1,714	660	1,041	1,731		3,173	690	25,068	6,680	41,278
1974		46	942	558	1,216		288	1,150	24,904	2,210	31,314
1975	572	105	1,278	186	1,214		1,068	1,375	31,961	690	38,449
1976	1,162		5,558	505	1,548		3,372	4,860	31,939	3,470	52,414
1977	1,262	350	6,515	1,513	2,230		3,037	1,055	21,362	17,090	54,414
1978	1,749	780	1,933	3,529	1,216		10,627	4,647	34,334	18,330	77,145
1979		588	3,986	532	1,693		277	5,762	87,852	3,920	104,610
1980	1,259	253	4,879	5,752	2,575		7,982	27,448	83,984	3,220	137,352
1981	1,286	142	4,363	1,421	3,402		5,998	15,939	44,523	4,160	81,234
1982	2,518	498	4,752	7,525	4,337	70,540		9,790	30,790	45,000	175,750
1983	1,289	338	1,819	9,709		73,345		11,297	33,734	44,000	175,531
1984	2,090	939	5,927	18,000	2,728	37,659		27,792	92,659	3,000	190,794
1985	2,884	151	5,928	26,879				24,784	136,969	8,650	206,245
1986	600	245	1,659					17,530	40,281	15,230	75,545
1987	736	74	628	14,187			45,400	43,487	53,932	76,530	234,974
1988	1,990	1,243	1,607	31,696				50,907	42,476	30,360	160,279
1989	4,959	2,276	5,958	3,484				7,770	138,377	28,480	191,304
1990			2,306	2,230				77,959	83,434	11,760	177,689
1991			750	4,628	1,750			112,792	78,175	22,267	220,362
1992			1,106	3,147	970			32,912	62,584	4,980	105,699
1993								11,582	99,259	12,258	123,099
1994		705		1,077				6,086	122,277	15,211	145,356
1995							1,372	7,542	61,982	12,479	83,375
1996							4,181	55,256	34,691	31,601	125,729
1997							27,660	56,053	65,905	11,337	160,955
1998							11,130	67,727	113,480	19,593	211,930
1999							3,951	49,406	139,863	19,514	212,734
2000							1,389	45,685	56,580	13,930	117,584
2001							4,792	42,462	74,964	17,044	139,262
2002							66,294	72,871	62,115	6,858	141,844
2003							19,106	12,094	157,469	27,474	216,143
2004			2,132	4,428			13,225	19,130	110,244	30,458	179,617

Note: Counts include all mortalities, fish killed for propagation purposes and estimates of fish below weirs, where applicable.

<sup>a</sup> Data provided by ADF&G, Division of Sport Fish, Soldotna (Berkhahn) 2004. In some instances, numbers are rounded.

<sup>b</sup> United States Department of Agriculture, Forest Service, Seward, Alaska (1984–1992, 1994).

<sup>c</sup> Carter-Moose Creek Survey: lower 1.0 mile of creek; Ptarmigan Creek Survey: lower 1.5 miles of creek (1991–1992, 1994, 2004).

<sup>d</sup> Survey conducted on an unnamed stream at eastern end of Tern (Mud) Lake.

<sup>e</sup> ADF&G, FRED Division weir count (1982–1984), CFM&D ground survey, 1995–2004.

<sup>f</sup> Weir count: 1971, 1973, 1976–1989 (FRED Division); 1990–2004 (Cook Inlet Aquaculture Association).

**Table 10.**—Estimated sockeye salmon escapement into the Kasilof River, 15 June through 16 August, 2004.

<b>Date</b>	<b>Daily</b>	<b>Cumulative</b>	<b>Date</b>	<b>Daily</b>	<b>Cumulative</b>
15-Jun	4,176	4,176	17-Jul	10,928	376,882
16-Jun	1,837	6,013	18-Jul	7,883	384,765
17-Jun	1,346	7,359	19-Jul	5,549	390,314
18-Jun	2,650	10,009	20-Jul	4,471	394,785
19-Jun	2,855	12,864	21-Jul	16,134	410,919
20-Jun	6,512	19,376	22-Jul	7,458	418,377
21-Jun	11,133	30,509	23-Jul	9,507	427,884
22-Jun	22,798	53,307	24-Jul	8,357	436,241
23-Jun	26,543	79,850	25-Jul	7,750	443,991
24-Jun	28,054	107,904	26-Jul	6,498	450,489
25-Jun	20,270	128,174	27-Jul	4,746	455,235
26-Jun	1,092	129,266	28-Jul	6,069	461,304
27-Jun	1,524	130,790	29-Jul	4,610	465,914
28-Jun	2,941	133,731	30-Jul	4,707	470,621
29-Jun	4,517	138,248	31-Jul	3,905	474,526
30-Jun	4,636	142,884	1-Aug	2,926	477,452
1-Jul	1,253	144,137	2-Aug	3,845	481,297
2-Jul	1,724	145,861	3-Aug	5,892	487,189
3-Jul	2,764	148,625	4-Aug	11,723	498,912
4-Jul	4,339	152,964	5-Aug	7,685	506,597
5-Jul	1,731	154,695	6-Aug	5,924	512,521
6-Jul	3,488	158,183	7-Aug	5,335	517,856
7-Jul	8,797	166,980	8-Aug	5,318	523,174
8-Jul	5,666	172,646	9-Aug	9,782	532,956
9-Jul	1,556	174,202	10-Aug	6,931	539,887
10-Jul	1,769	175,971	11-Aug	6,440	546,327
11-Jul	1,575	177,546	12-Aug	6,188	552,515
12-Jul	3,953	181,499	13-Aug	7,452	559,967
13-Jul	36,448	217,947	14-Aug	7,134	567,101
14-Jul	92,732	310,679	15-Aug	5,971	573,072
15-Jul	37,697	348,376	16-Aug	4,509	577,581
16-Jul	17,578	365,954			

**Table 11.**—Cumulative proportion by date of salmon counts recorded in the Kasilof River 1979–2004.

Date	Cumulative Proportion 1979-1992 <sup>a, b</sup>													
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
15-May			0.001											
23-May			0.008											
24-May	0.003		0.010											
08-Jun	0.039		0.038											
09-Jun	0.040		0.040			0.007								
10-Jun	0.041		0.043	0.001	0.045	0.008								
11-Jun	0.041		0.045	0.003	0.046	0.009								
12-Jun	0.042		0.047	0.005	0.048	0.011	0.002	0.037	0.044					
13-Jun	0.043		0.049	0.007	0.050	0.012	0.003	0.041	0.051					
14-Jun	0.044		0.051	0.008	0.051	0.013	0.003	0.045	0.062	0.009				
15-Jun	0.044		0.055	0.010	0.053	0.015	0.004	0.048	0.073	0.014	0.001	0.002	0.002	0.004
16-Jun	0.045		0.059	0.011	0.056	0.018	0.004	0.053	0.091	0.018	0.002	0.004	0.009	0.014
17-Jun	0.046		0.064	0.013	0.058	0.020	0.005	0.059	0.106	0.021	0.004	0.006	0.015	0.020
18-Jun	0.048		0.075	0.015	0.060	0.022	0.005	0.062	0.120	0.025	0.006	0.008	0.019	0.031
19-Jun	0.049		0.082	0.027	0.063	0.025	0.006	0.066	0.146	0.028	0.007	0.009	0.026	0.038
20-Jun	0.051		0.099	0.035	0.065	0.031	0.007	0.068	0.171	0.032	0.011	0.010	0.033	0.050
21-Jun	0.054		0.114	0.040	0.068	0.039	0.007	0.071	0.190	0.038	0.014	0.012	0.044	0.064
22-Jun	0.060	0.003	0.133	0.043	0.070	0.048	0.008	0.073	0.198	0.046	0.016	0.014	0.056	0.082
23-Jun	0.066	0.007	0.162	0.045	0.074	0.058	0.009	0.074	0.201	0.053	0.019	0.015	0.070	0.101
24-Jun	0.077	0.009	0.195	0.049	0.076	0.069	0.012	0.075	0.206	0.065	0.021	0.017	0.085	0.125
25-Jun	0.093	0.022	0.223	0.053	0.078	0.075	0.015	0.077	0.212	0.077	0.024	0.019	0.096	0.146
26-Jun	0.108	0.035	0.261	0.055	0.080	0.080	0.017	0.079	0.218	0.089	0.031	0.022	0.110	0.174
27-Jun	0.125	0.051	0.288	0.058	0.082	0.089	0.019	0.082	0.222	0.105	0.037	0.025	0.135	0.215
28-Jun	0.153	0.075	0.342	0.061	0.085	0.099	0.022	0.085	0.227	0.133	0.046	0.030	0.171	0.250
29-Jun	0.169	0.094	0.389	0.064	0.090	0.111	0.025	0.095	0.238	0.157	0.057	0.037	0.204	0.290
30-Jun	0.196	0.136	0.438	0.069	0.110	0.123	0.029	0.121	0.249	0.173	0.074	0.051	0.238	0.323
01-Jul	0.229	0.166	<b>0.500</b>	0.078	0.153	0.136	0.035	0.153	0.267	0.184	0.098	0.065	0.259	0.338
02-Jul	0.248	0.217	0.512	0.091	0.165	0.150	0.039	0.180	0.297	0.189	0.153	0.076	0.275	0.349
03-Jul	0.281	0.250	0.522	0.104	0.188	0.157	0.044	0.198	0.317	0.196	0.178	0.091	0.293	0.372
04-Jul	0.325	0.280	0.529	0.115	0.212	0.178	0.056	0.215	0.334	0.224	0.183	0.120	0.338	0.377
05-Jul	0.374	0.314	0.534	0.122	0.221	0.217	0.066	0.228	0.357	0.235	0.225	0.158	0.385	0.394
06-Jul	0.404	0.338	0.543	0.129	0.231	0.243	0.071	0.245	0.385	0.255	0.277	0.193	0.400	0.414
07-Jul	0.458	0.353	0.551	0.136	0.240	0.263	0.078	0.257	0.403	0.306	0.321	0.209	0.406	0.419
08-Jul	0.473	0.366	0.562	0.145	0.247	0.304	0.095	0.261	0.422	0.329	0.346	0.235	0.417	0.428
09-Jul	0.496	0.379	0.604	0.156	0.263	0.358	0.103	0.269	0.438	0.382	0.378	0.254	0.431	0.439
10-Jul	<b>0.509</b>	0.393	0.649	0.164	0.294	0.391	0.114	0.289	0.450	0.457	0.404	0.258	0.450	0.453
11-Jul	0.519	0.413	0.677	0.177	0.315	0.411	0.119	0.323	0.456	<b>0.507</b>	0.431	0.267	0.477	0.462
12-Jul	0.532	0.421	0.712	0.197	0.344	0.416	0.126	0.337	0.481	0.567	0.488	0.281	0.488	<b>0.522</b>
13-Jul	0.550	0.426	0.746	0.217	0.395	0.427	0.148	0.430	<b>0.508</b>	0.600	<b>0.500</b>	0.294	0.490	0.586
14-Jul	0.579	0.436	0.797	0.247	0.465	0.445	0.208	<b>0.501</b>	0.520	0.614	0.514	0.303	0.492	0.598
15-Jul	0.629	0.464	0.838	0.293	<b>0.514</b>	0.484	0.267	0.513	0.587	0.659	0.532	0.317	<b>0.508</b>	0.608
16-Jul	0.643	<b>0.528</b>	0.863	0.358	0.547	<b>0.543</b>	0.382	0.528	0.600	0.676	0.566	0.350	0.523	0.616
17-Jul	0.674	0.570	0.877	0.404	0.663	0.590	0.418	0.544	0.608	0.691	0.615	0.498	0.546	0.629
18-Jul	0.703	0.609	0.891	0.491	0.759	0.636	0.432	0.562	0.619	0.703	0.629	<b>0.602</b>	0.615	0.645
19-Jul	0.730	0.649	0.904	<b>0.577</b>	0.775	0.693	0.436	0.575	0.699	0.723	0.648	0.623	0.649	0.665

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Table 11.—Page 2 of 4.

Date	Cumulative Proportion 1979-1992 <sup>a, b</sup>													
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
20-Jul	0.755	0.693	0.922	0.642	0.785	0.739	0.439	0.586	0.731	0.770	0.711	0.664	0.661	0.705
21-Jul	0.767	0.715	0.936	0.702	0.804	0.778	0.464	0.601	0.765	0.857	0.747	0.676	0.679	0.725
22-Jul	0.781	0.738	0.942	0.744	0.822	0.810	<b>0.551</b>	0.611	0.809	0.921	0.768	0.687	0.710	0.740
23-Jul	0.848	0.775	0.947	0.759	0.833	0.832	0.609	0.618	0.851	0.929	0.806	0.706	0.751	0.770
24-Jul	0.860	0.788	0.952	0.769	0.842	0.864	0.649	0.627	0.873	0.935	0.816	0.723	0.781	0.844
25-Jul	0.875	0.803	0.954	0.784	0.849	0.888	0.683	0.717	0.888	0.939	0.824	0.754	0.813	0.890
26-Jul	0.896	0.818	0.957	0.800	0.854	0.910	0.733	0.795	0.897	0.943	0.840	0.776	0.849	0.933
27-Jul	0.910	0.830	0.959	0.818	0.858	0.918	0.791	0.806	0.906	0.948	0.850	0.790	0.881	0.962
28-Jul	0.930	0.840	0.962	0.836	0.862	0.926	0.826	0.812	0.916	0.953	0.860	0.808	0.914	0.971
29-Jul	0.941	0.853	0.963	0.847	0.867	0.933	0.842	0.829	0.925	0.958	0.869	0.836	0.935	0.977
30-Jul	0.947	0.864	0.964	0.857	0.874	0.939	0.853	0.888	0.939	0.961	0.877	0.856	0.947	0.983
31-Jul	0.954	0.878	0.966	0.866	0.889	0.943	0.865	0.917	0.962	0.965	0.885	0.872	0.956	0.989
01-Aug	0.957	0.889	1.000	0.876	1.000	1.000	0.875	1.000	0.975	0.969	0.892	0.885	0.960	0.994
02-Aug	0.963	0.900		0.886			0.881		0.982	0.973	0.898	0.901	0.966	1.000
03-Aug	0.966	0.906		0.895			0.890		0.986	0.977	0.905	0.916	0.973	
04-Aug	0.969	0.915		1.000			0.898		0.990	0.983	0.916	0.924	0.978	
05-Aug	0.980	0.925					0.904		0.994	0.990	0.927	0.933	0.981	
06-Aug	0.983	0.932					0.909		0.997	0.993	0.943	0.941	0.987	
07-Aug	0.986	0.939					0.917		1.000	0.997	0.958	0.946	0.994	
08-Aug	0.989	0.946					0.927			1.000	0.963	0.953	1.000	
09-Aug	0.991	0.961					0.938				0.969	0.963		
10-Aug	0.994	0.968					0.945				0.976	0.972		
11-Aug	0.998	0.979					0.949				0.982	0.977		
12-Aug	1.000	0.988					1.000				0.986	0.984		
13-Aug		1.000									0.990	0.989		
14-Aug											0.996	0.995		
15-Aug											1.000	1.000		
16-Aug														
Midpoint	10-Jul	16-Jul	01-Jul	19-Jul	15-Jul	16-Jul	22-Jul	14-Jul	13-Jul	11-Jul	13-Jul	18-Jul	15-Jul	12-Jul
No. days for 80% <sup>c</sup>	32	34	29	32	33	28	28	32	41	26	33	29	33	34

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Table 11.—Page 3 of 4.

Date	Cumulative Proportion 1993-2004 <sup>a, b</sup>											
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
15-May												
23-May												
24-May												
08-Jun												
09-Jun												
10-Jun												
11-Jun												
12-Jun	0.011											
13-Jun	0.026	0.002										
14-Jun	0.043	0.004			0.003					0.013		
15-Jun	0.052	0.007	0.001	0.003	0.007	0.001	0.002	0.001	0.006	0.027	0.004	0.007
16-Jun	0.064	0.010	0.002	0.007	0.013	0.003	0.004	0.002	0.020	0.039	0.007	0.010
17-Jun	0.074	0.014	0.004	0.016	0.026	0.006	0.007	0.004	0.043	0.051	0.009	0.013
18-Jun	0.090	0.017	0.006	0.023	0.039	0.016	0.009	0.010	0.064	0.067	0.011	0.017
19-Jun	0.103	0.020	0.010	0.033	0.061	0.029	0.012	0.015	0.085	0.095	0.017	0.022
20-Jun	0.118	0.025	0.016	0.047	0.098	0.036	0.016	0.022	0.097	0.119	0.032	0.034
21-Jun	0.132	0.029	0.024	0.055	0.125	0.048	0.025	0.027	0.110	0.138	0.053	0.053
22-Jun	0.143	0.034	0.032	0.079	0.141	0.065	0.038	0.040	0.124	0.157	0.065	0.092
23-Jun	0.154	0.039	0.040	0.111	0.157	0.082	0.055	0.055	0.146	0.174	0.092	0.138
24-Jun	0.179	0.047	0.047	0.145	0.184	0.094	0.072	0.075	0.174	0.185	0.113	0.187
25-Jun	0.217	0.058	0.059	0.162	0.227	0.107	0.099	0.096	0.210	0.194	0.128	0.222
26-Jun	0.257	0.071	0.071	0.181	0.276	0.124	0.120	0.122	0.229	0.212	0.152	0.224
27-Jun	0.293	0.094	0.088	0.227	0.321	0.152	0.147	0.147	0.258	0.230	0.155	0.226
28-Jun	0.317	0.129	0.120	0.295	0.337	0.181	0.181	0.169	0.294	0.233	0.156	0.232
29-Jun	0.330	0.172	0.166	0.318	0.360	0.212	0.216	0.202	0.307	0.235	0.165	0.239
30-Jun	0.357	0.220	0.196	0.346	0.392	0.224	0.244	0.233	0.330	0.239	0.188	0.247
01-Jul	0.386	0.250	0.216	0.381	0.412	0.252	0.277	0.264	0.344	0.266	0.197	0.250
02-Jul	0.419	0.256	0.229	0.386	0.454	0.276	0.291	0.301	0.375	0.280	0.214	0.253
03-Jul	0.429	0.282	0.241	0.389	0.468	0.290	0.307	0.328	0.389	0.313	0.248	0.257
04-Jul	0.441	0.322	0.248	0.399	<b>0.513</b>	0.297	0.315	0.337	0.409	0.346	0.264	0.265
05-Jul	0.459	0.333	0.265	0.438	0.521	0.321	0.332	0.361	0.414	0.354	0.268	0.268
06-Jul	0.467	0.375	0.293	0.452	0.526	0.353	0.347	0.383	0.424	0.379	0.284	0.274
07-Jul	0.496	0.437	0.315	0.475	0.544	0.365	0.377	0.394	0.449	0.427	0.314	0.289
08-Jul	<b>0.537</b>	0.483	0.322	0.496	0.548	0.385	0.412	0.416	0.476	0.469	0.329	0.299
09-Jul	0.548	<b>0.501</b>	0.335	0.499	0.556	0.411	0.419	0.441	0.482	0.487	0.351	0.302
10-Jul	0.558	0.535	0.355	<b>0.507</b>	0.566	0.438	0.427	0.472	0.493	<b>0.514</b>	0.379	0.305
11-Jul	0.571	0.545	0.359	0.524	0.582	0.446	0.439	0.481	0.498	0.525	0.410	0.307
12-Jul	0.590	0.552	0.365	0.528	0.598	0.452	0.445	<b>0.502</b>	<b>0.505</b>	0.533	0.463	0.314
13-Jul	0.680	0.565	0.373	0.538	0.617	0.465	0.453	0.534	0.513	0.546	0.480	0.377
14-Jul	0.707	0.584	0.387	0.650	0.624	0.474	0.467	0.594	0.530	0.553	<b>0.504</b>	<b>0.538</b>
15-Jul	0.748	0.623	0.395	0.710	0.630	0.496	0.473	0.664	0.562	0.570	0.523	0.603
16-Jul	0.792	0.636	0.487	0.721	0.643	<b>0.522</b>	0.481	0.673	0.596	0.582	0.603	0.634
17-Jul	0.804	0.679	<b>0.618</b>	0.728	0.673	0.573	<b>0.501</b>	0.691	0.640	0.597	0.675	0.653
18-Jul	0.816	0.711	0.641	0.737	0.682	0.603	0.516	0.702	0.688	0.621	0.706	0.666
19-Jul	0.828	0.732	0.667	0.758	0.689	0.642	0.534	0.730	0.706	0.642	0.722	0.676

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**Table 11.**—Page 4 of 4.

Date	Cumulative Proportion 1993-2004 <sup>a, b</sup>											
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
20-Jul	0.839	0.750	0.688	0.777	0.696	0.671	0.563	0.763	0.717	0.678	0.734	0.684
21-Jul	0.849	0.763	0.704	0.790	0.700	0.687	0.619	0.777	0.729	0.687	0.757	0.711
22-Jul	0.857	0.771	0.753	0.806	0.707	0.713	0.679	0.807	0.733	0.708	0.787	0.724
23-Jul	0.877	0.778	0.807	0.823	0.727	0.740	0.721	0.843	0.746	0.723	0.820	0.741
24-Jul	0.892	0.789	0.868	0.850	0.741	0.773	0.757	0.876	0.800	0.752	0.834	0.755
25-Jul	0.909	0.799	0.883	0.875	0.750	0.799	0.792	0.895	0.901	0.791	0.852	0.769
26-Jul	0.921	0.806	0.898	0.883	0.756	0.820	0.829	0.912	0.911	0.812	0.864	0.780
27-Jul	0.930	0.813	0.919	0.890	0.763	0.839	0.865	0.931	0.927	0.823	0.882	0.788
28-Jul	0.946	0.826	0.927	0.896	0.773	0.870	0.881	0.947	0.936	0.835	0.901	0.799
29-Jul	0.958	0.846	0.934	0.900	0.781	0.893	0.900	0.965	0.950	0.852	0.917	0.807
30-Jul	0.969	0.868	0.939	0.904	0.793	0.913	0.913	0.974	0.967	0.862	0.929	0.815
31-Jul	0.974	0.892	0.945	0.907	0.802	0.938	0.925	0.983	0.980	0.873	0.939	0.822
01-Aug	0.979	0.928	0.950	0.923	0.810	0.960	0.935	0.990	0.988	0.887	0.947	0.827
02-Aug	0.987	0.943	0.956	0.938	0.820	0.968	0.948	1.000	0.993	0.908	0.956	0.833
03-Aug	0.992	0.952	0.969	0.952	0.829	0.974	0.961		1.000	0.925	0.963	0.843
04-Aug	0.996	0.959	0.984	0.969	0.836	0.980	0.972			0.940	0.967	0.864
05-Aug	1.000	0.966	0.988	0.979	0.850	0.988	0.979			0.949	0.973	0.877
06-Aug		0.972	0.993	0.984	0.872	0.992	0.986			0.958	0.979	0.887
07-Aug		0.977	1.000	0.992	0.896	0.997	0.993			0.969	0.985	0.897
08-Aug		0.981		1.000	0.925	1.000	1.000			0.978	0.990	0.906
09-Aug		0.987			0.945					0.987	0.994	0.923
10-Aug		0.994			0.962					0.994	1.000	0.935
11-Aug		1.000			0.984					1.000		0.946
12-Aug					1.000							0.957
13-Aug												0.970
14-Aug												0.982
15-Aug												0.992
16-Aug												1.000
Midpoint	08-Jul	09-Jul	14-Jul	10-Jul	4-Jul	16-Jul	17-Jul	12-Jul	12-Jul	10-Jul	14-Jul	14-Jul

Average midpoint (1979–2003): 12-Jul

No. days

for 80%<sup>c</sup>      37      35      30      30      49      36      34      31      35      44      34      46

Average 1979–2003: 36

*Note:* Bold number represents midpoint of the run.

<sup>a</sup> Proportion for first day (1983–1988) represents that portion of the escapement estimated to have passed the counting site prior to start of counting operations.

<sup>b</sup> Proportion for last date (1981–1986) represents that portion of the escapement estimated to have entered the river after termination of counting operations.

<sup>c</sup> Inclusive dates: date proportion of escapement reached 10% through date proportion of escapement reached 90%.

**Table 12.**—Top 25 peak daily sonar counts for the Kasilof and Kenai rivers, 1978–2004.

Rank	Kasilof River			Kenai River		
	Year	Date	Sonar Count	Year	Date	Sonar Count
1	2004	14-Jul	92,732	1987	21-Jul	150,293
2	1985	16-Jul	58,176	1987	23-Jul	138,255
3	1985	22-Jul	43,931	2004	15-Jul	138,212
4	2004	15-Jul	37,697	1987	22-Jul	134,519
5	2004	13-Jul	36,448	1987	24-Jul	132,238
6	2001	25-Jul	31,148	1987	25-Jul	130,564
7	1985	14-Jul	30,490	1989	22-Jul	127,382
8	1985	15-Jul	29,696	1980	17-Jul	117,463
9	1985	27-Jul	29,354	1996	15-Jul	117,296
10	1985	23-Jul	29,132	1989	24-Jul	116,954
11	2003	16-Jul	28,756	2004	14-Jul	114,106
12	1996	14-Jul	28,125	1987	20-Jul	113,852
13	2004	24-Jun	28,054	1988	24-Jul	112,284
14	1995	17-Jul	26,895	1987	26-Jul	111,678
15	2004	23-Jun	26,543	2003	17-Jul	108,890
16	2003	17-Jul	25,910	1996	16-Jul	107,076
17	1986	13-Jul	25,845	1988	23-Jul	107,076
18	1985	26-Jul	25,334	1989	23-Jul	104,724
19	1986	25-Jul	24,774	2004	16-Jul	94,920
20	1983	17-Jul	24,315	2004	22-Jul	95,470
21	2004	22-Jun	22,798	2002	19-Jul	94,761
22	1986	26-Jul	21,440	1982	20-Jul	93,779
23	1990	17-Jul	21,340	2003	18-Jul	93,295
24	1985	24-Jul	20,353	1990	18-Jul	92,672
25	2004	25-Jun	20,270	2000	14-Jul	90,802

**Table 13.**—Daily fish wheel catch by species for the Kasilof River, 15 June through 16 August, 2004.

Date	Hours Open <sup>a</sup>	Sockeye		Pink		Coho		Chinook		Trout	
		Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
15-Jun	0.0	0	0	0	0	0	0	0	0	0	0
16-Jun	3.2	0	0	0	0	0	0	0	0	0	0
17-Jun	12.4	0	0	0	0	0	0	0	0	0	0
18-Jun	10.9	1	1	0	0	0	0	0	0	0	0
19-Jun	14.7	8	9	0	0	0	0	0	0	0	0
20-Jun	16.5	30	39	0	0	0	0	0	0	0	0
21-Jun	9.5	40	79	0	0	0	0	0	0	0	0
22-Jun	8.0	139	218	0	0	0	0	0	0	0	0
23-Jun	3.0	83	301	0	0	0	0	0	0	0	0
24-Jun	3.7	19	320	0	0	0	0	0	0	0	0
25-Jun	10.7	26	346	0	0	0	0	0	0	0	0
26-Jun	0.0	0	346	0	0	0	0	0	0	0	0
27-Jun	13.5	5	351	0	0	0	0	0	0	0	0
28-Jun	9.0	7	358	0	0	0	0	0	0	0	0
29-Jun	12.0	18	376	0	0	0	0	0	0	0	0
30-Jun	13.0	12	388	0	0	0	0	0	0	0	0
1-Jul	22.7	2	390	0	0	0	0	0	0	1	1
2-Jul	23.8	3	393	0	0	0	0	0	0	0	1
3-Jul	16.3	33	426	1	1	0	0	0	0	0	1
4-Jul	23.3	57	483	0	1	0	0	1	1	0	1
5-Jul	22.8	47	530	1	2	0	0	1	2	0	1
6-Jul	20.8	77	607	1	3	0	0	0	2	0	1
7-Jul	18.5	73	680	1	4	0	0	1	3	0	1
8-Jul	22.7	40	720	0	4	0	0	0	3	0	1
9-Jul	23.5	21	741	1	5	0	0	0	3	0	1
10-Jul	23.6	6	747	0	5	0	0	0	3	0	1
11-Jul	24.0	5	752	0	5	0	0	0	3	0	1
12-Jul	23.8	17	769	3	8	0	0	1	4	0	1
13-Jul	14.7	169	938	0	8	0	0	0	4	1	2
14-Jul	6.5	383	1,321	1	9	0	0	0	4	0	2
15-Jul	12.1	30	1,351	0	9	0	0	0	4	0	2
16-Jul	17.3	48	1,399	1	10	0	0	0	4	0	2
17-Jul	17.2	57	1,456	1	11	0	0	1	5	0	2
18-Jul	24.0	52	1,508	1	12	0	0	4	9	0	2

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**Table 13.**—Page 2 of 2.

Date	Hours Open <sup>a</sup>	Sockeye		Pink		Coho		Chinook		Trout	
		Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
19-Jul	15.3	12	1,520	0	12	0	0	2	11	0	2
20-Jul	10.6	6	1,526	0	12	0	0	0	11	0	2
21-Jul	20.2	104	1,630	1	13	0	0	0	11	0	2
22-Jul	21.2	80	1,710	1	14	0	0	5	16	0	2
23-Jul	20.8	38	1,748	0	14	0	0	1	17	0	2
24-Jul	22.7	68	1,816	1	15	0	0	1	18	0	2
25-Jul	21.2	46	1,862	0	15	0	0	1	19	0	2
26-Jul	13.0	5	1,867	0	15	0	0	0	19	1	3
27-Jul	16.5	17	1,884	0	15	0	0	0	19	0	3
28-Jul	23.3	2	1,886	1	16	0	0	0	19	0	3
29-Jul	22.3	2	1,888	0	16	0	0	0	19	0	3
30-Jul	22.3	6	1,894	1	17	0	0	0	19	0	3
31-Jul	19.3	9	1,903	0	17	0	0	0	19	0	3
1-Aug	24.7	7	1,910	2	19	0	0	1	20	0	3
2-Aug	20.4	8	1,918	1	20	0	0	3	23	0	3
3-Aug	27.1	11	1,929	7	27	0	0	1	24	0	3
4-Aug	17.5	7	1,936	2	29	0	0	2	26	0	3
5-Aug	23.5	28	1,964	1	30	0	0	3	29	0	3
6-Aug	12.5	0	1,964	1	31	0	0	4	33	0	3
7-Aug	25.5	4	1,968	0	31	0	0	1	34	0	3
8-Aug	0.0	0	1,968	0	31	0	0	0	34	0	3
9-Aug	24.5	3	1,971	5	36	0	0	3	37	0	3
10-Aug	14.0	7	1,978	3	39	0	0	2	39	0	3
11-Aug	17.6	13	1,991	9	48	2	2	0	39	0	3
12-Aug	0.0	0	1,991	0	48	0	2	0	39	0	3
13-Aug	0.0	0	1,991	0	48	0	2	0	39	0	3
14-Aug	0.0	0	1,991	0	48	0	2	0	39	0	3
15-Aug	0.0	0	1,991	0	48	0	2	0	39	0	3
16-Aug	0.0	0	1,991	0	48	0	2	0	39	0	3
Proportion:		95.6%		2.3%		0.1%		1.9%		0.1%	
Total Catch: 2,083											
Time Operated: 953.6 hours											
CPUE: 2.2 fish/hour											

*Note:* Table does not include fish caught by gillnet. Fish wheel not operated after 12 August because of poor catch rate and damage to equipment. Gillnet catch for 6 and 9 August was 60 sockeye salmon and 0 other species.

**Table 14.**—Age composition of sockeye salmon sampled from the Kasilof River 1969–2004.

Year	Percentage Composition by Age Class								Sample Size
	1.1	1.2	1.3	1.4	2.1	2.2	2.3	Other	
1969	0.0	14.0	39.0	1.0	0.0	30.0	16.0	0.0	399
1970	0.0	2.0	37.0	2.0	0.0	16.0	11.0	2.0	297
1971	0.0	6.0	69.0	0.0	0.0	8.0	16.0	1.0	153
1972	0.0	42.0	36.0	1.0	0.0	3.0	18.0	0.0	668
1973	0.0	20.0	57.0	0.0	0.0	19.0	4.0	0.0	374
1974	0.0	35.0	59.0	0.0	0.0	4.0	2.0	0.0	254
1975	1.0	29.0	7.0	0.0	0.0	58.0	4.0	1.0	931
1976	0.2	35.9	24.1	0.0	0.0	28.2	11.4	0.2	755
1977	0.3	29.4	30.0	0.0	0.8	27.8	11.7	0.0	1,209
1978	0.0	41.3	40.1	0.0	0.0	10.4	8.2	0.0	967
1979	0.7	58.9	28.2	0.0	0.0	10.5	1.6	0.1	590
1980	2.1	67.0	23.1	0.1	0.0	5.0	2.7	0.0	899
1981	0.0	28.9	63.6	0.0	0.0	5.9	1.6	0.0	1,479
1982	0.8	30.6	54.4	0.0	0.2	9.3	4.7	0.0	1,518
1983	0.0	49.5	33.1	0.0	0.0	12.9	4.5	0.0	1,997
1984	0.0	50.5	24.8	0.0	0.2	17.9	6.6	0.0	2,269
1985	0.2	57.3	21.8	0.1	0.1	17.8	2.6	0.1	3,063
1986	0.0	40.9	42.0	0.3	0.1	11.9	4.6	0.2	1,660
1987	0.2	43.4	27.4	0.0	0.1	22.4	6.4	0.1	1,248
1988	0.1	33.7	36.4	0.2	0.1	17.5	12.0	0.1	2,282
1989	0.0	14.9	35.3	0.1	0.1	36.6	13.0	0.0	1,301
1990	0.4	32.9	20.7	0.3	0.0	33.2	12.4	0.3	762
1991	0.0	31.5	33.4	0.1	0.1	29.0	5.8	0.1	2,106
1992	0.0	21.1	27.5	0.0	0.2	35.3	16.0	0.0	1,717
1993	0.4	16.3	29.8	0.0	0.4	28.0	25.2	0.0	571
1994	0.0	26.4	28.4	0.0	0.0	28.2	17.0	0.0	723
1995	0.2	44.0	15.5	0.0	0.0	25.0	15.3	0.0	587
1996	0.0	24.8	48.3	0.0	0.0	21.4	5.6	0.0	721
1997	0.0	21.1	54.8	0.0	0.0	13.5	10.7	0.0	758
1998	0.1	39.7	28.1	0.4	0.6	22.2	8.9	0.0	857
1999	0.0	29.7	33.8	0.2	0.1	26.7	9.4	0.1	964
2000	0.1	41.9	33.9	0.0	0.4	11.4	12.3	0.0	747
2001	0.4	29.3	48.6	0.2	0.2	16.5	4.8	0.2	564
2002	0.3	33.9	38.1	0.3	1.5	19.3	6.6	0.1	746
2003	0.7	37.3	26.1	0.0	0.2	29.3	6.5	0.0	1298
2004	0.1	43.7	18.9	0.1	0.2	32.6	4.3	0.0	908
1969-2003									
Average	0.2	33.1	35.9	0.2	0.2	20.3	9.1	0.2	1070

*Note:* Percentages weighted by total numbers in the escapement: 1979–2002. Percentages corrected in historical table in 2002.

*Source:* 1978–1997 source: D. Waltemyer, Commercial Fisheries Biologist, ADF&G, Soldotna; personal communication. 1998–2004 source: T. Tobias, Commercial Fisheries Technician, ADF&G, Soldotna; personal communication.

**Table 15.**—Length composition of the major age classes of sockeye salmon sampled from the Kasilof River, 1980–2004.

Year	Age Class	Male		Female		Ratio Male-Female
		Average Length (mm)	Sample Size	Average Length (mm)	Sample Size	
1980	1.2	474	189	464	376	0.5:1
1981		503	241	492	146	1.7:1
1982		481	285	466	235	1.2:1
1983		493	113	491	78	1.4:1
1984		480	544	478	428	2.6:1
1985		474	723	472	897	0.8:1
1986		482	266	482	368	0.7:1
1987		472	282	470	257	1.1:1
1988		480	353	477	480	0.7:1
1989		481	245	480	290	0.8:1
1990		462	139	458	91	1.5:1
1991		467	326	461	305	1.1:1
1992		467	184	466	212	0.9:1
1993		479	40	479	53	0.8:1
1994		465	90	465	91	1.0:1
1995		491	117	483	141	0.8:1
1996		476	94	475	85	1.1:1
1997		456	80	452	80	1.0:1
1998		475	178	468	162	1.1:1
1999		479	140	474	146	1.0:1
2000		481	162	474	162	1.0:1
2001		479	77	477	88	0.9:1
2002		486	114	476	139	0.8:1
2003		481	230	480	247	0.9:1
2004		482	181	475	216	0.8:1
1980–2003 Average		478	132	473	139	1.0:1
1980	1.3	531	35	516	115	0.3:1
1981		566	422	558	369	1.1:1
1982		549	377	542	428	0.9:1
1983		558	170	547	187	0.9:1
1984		539	304	533	383	0.8:1
1985		531	341	527	433	0.8:1
1986		550	342	543	405	0.8:1
1987		553	191	552	154	1.2:1
1988		550	311	543	382	0.8:1
1989		550	266	542	296	0.9:1
1990		518	81	523	106	0.8:1
1991		531	418	518	335	1.3:1
1992		536	195	527	197	1.0:1
1993		550	101	542	69	1.5:1
1994		538	98	530	99	1.1:1
1995		542	42	534	49	0.9:1
1996		566	213	556	135	1.6:1
1997		555	223	541	192	1.2:1
1998		527	110	525	131	0.8:1

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**Table 15.**—Page 2 of 2.

Year	Age Class	Male		Female		Ratio Male-Female	
		Average Length (mm)	Sample Size	Average Length (mm)	Sample Size		
1999	1.3	543	167	542	159	1.1:1	
2000		555	140	547	122	1.2:1	
2001		549	149	545	125	1.2:1	
2002		555	144	544	140	1.1:1	
2003		546	167	546	207	0.8:1	
2004		549	82	539	90	0.9:1	
1980–2003 Average		545	210	538	218	1.0:1	
1982	2.2	479	65	472	81	0.8:1	
1984		484	202	482	223	0.9:1	
1985		482	248	476	319	0.8:1	
1986		492	78	489	115	0.7:1	
1987		478	137	475	141	1.0:1	
1988		486	173	479	220	0.8:1	
1990		453	104	457	111	0.9:1	
1991		471	289	480	301	1.0:1	
1992		464	264	464	427	0.6:1	
1993		486	58	480	102	0.7:1	
1994		469	97	468	102	1.0:1	
1995		492	61	485	86	0.7:1	
1996		482	69	472	85	0.8:1	
1997		459	47	450	55	0.9:1	
1998		473	95	469	95	1.0:1	
1999		480	125	475	132	1.0:1	
2000		486	36	482	52	0.7:1	
2001		482	41	473	52	0.8:1	
2002		480	50	470	94	0.5:1	
2003		481	162	479	186	0.9:1	
2004		482	126	475	170	0.7:1	
1982–2003 Average		478	118	474	147	0.8:1	
1982		2.3	548	41	543	40	1.0:1
1984			533	102	526	80	1.3:1
1988	544		104	543	115	0.9:1	
1990	514		63	529	61	1.0:1	
1991	516		61	514	64	1.0:1	
1992	534		112	532	122	0.9:1	
1993	542		66	533	78	0.8:1	
1994	545		49	529	71	0.7:1	
1995	546		42	536	48	0.9:1	
1997	546		39	526	42	0.9:1	
2000	551		47	551	48	1.0:1	
2002	550		25	546	24	1.0:1	
2003	546		39	537	53	0.7:1	
2004	536		25	523	14	1.8:1	
1982–2003 Average			539	63	534	66	1:1
2004 Summary (all ages)			498	416	488	492	0.8:1

*Note:* Lengths measured from mideye to tail fork.

*Source:* 1980–1997 source D. Waltemyer, Commercial Fisheries Biologist, ADF&G, Soldotna; personal communication. 1998–2003 source T. Tobias, Commercial Fisheries Technician, ADF&G, Soldotna; personal communication.

**Table 16.**—Peak sockeye salmon survey and weir counts in 7 index areas, Kasilof River drainage 1975–2004.

Year	Nikolai Creek <sup>a</sup>		Crystal Creek <sup>b</sup>		Clear Creek <sup>b</sup>		Glacier Flat Creek <sup>c, d</sup>		Seepage Creek <sup>b</sup>		Moose Creek <sup>b</sup>		Bear Creek <sup>d, e</sup>		Total Index Area Escapement
	Method:	weir	ground	aerial	ground	ground	weir	ground	ground	ground	ground	weir	ground		
1975			5,700	441	328		14,355	3,657	3,261	27,700				55,442	
1976		11,924		806	306		7,122	790	13,834	51,800				86,582	
1977			29,100	589	1,797		5,835	840	16,594	58,000				112,755	
1978			34,200	200	181		6,144	1,055	15,899	43,400				101,079	
1979			19,100	499	360		3,593	804	8,108	35,900				68,364	
1980			10,000	1,010	2,253	15,500		1,813	15,645	125,384				171,605	
1981			36,000	860	2,978	41,571		3,376	12,968	75,117				172,870	
1982			16,800	1,785	4,183	17,348		1,638	13,402	51,350				106,506	
1983			17,100	1,657	860	38,829		3,305	19,245	61,957				142,953	
1984			8,400	141	2,619	76,217		6,250	13,999	54,328				161,954	
1985			17,500	817	3,509	121,400		5,728	9,222	120,400				278,576	
1986			11,900	1,395	2,710	60,615		2,016	21,241	102,948				202,825	
1987			9,002	1,385	7,704	61,000		791	17,601	71,250				168,733	
1988			10,841	593	5,809	40,015		1,387	17,727	127,532				203,904	
1989			4,818	1,068	559	20,156		940	17,058	62,941				107,540	
1990			7,474	879	220	14,355		1,217	18,800	46,300				89,245	
1991			21,582	391	1,223		12,068	1,661	18,105	68,880				123,910	
1992			10,145	1,930	1,979		9,144	349	15,235	44,100				82,882	
1993										45,123				45,123	
1994	63,723					10,347				52,720				126,790	
1995										41,863				41,863	
1996										58,692				58,692	
1997										81,954				81,954	
1998										113,510				113,510	
1999										78,265				78,265	
2000										84,993				84,993	
2001				128						110,164				110,292	
2002				240			19,568		14,432	97,694				131,934	
2003		800					9,580	457	14,514	72,109				97,460	
2004		1,342		1,297	202		28,073	535	28,934		29,431			89,814	

*Note:* Counts are categorized by type of survey and include natural mortalities, fish used for propagation purposes and estimates of fish below weirs, where applicable.

<sup>a</sup> All aerial surveys ground proofed ADF&G Comm. Fish and FRED; 1994 weir count - U.S. Biological Service; Ground surveys (1976 survey, 8.8 miles in length, 2003-2004 surveys, 1 mile in length) ADF&G Division of Commercial Fisheries.

<sup>b</sup> All surveys - ADF&G, Commercial Fisheries Management and Development Division or FRED.

<sup>c</sup> Weir counts - ADF&G, FRED - except 1994, (U.S. Biological Service), CIAA.

<sup>d</sup> ADF&G, (FRED) 1975–1992, CIAA 1993–2003, ADF&G, Division of Commercial Fisheries, 2004.

<sup>e</sup> Data for 1985 Glacier Flats and Bear Creek weirs is interpolated, final weir counts were 96,286 for Glacier Flats Creek and 115,366 for Bear Creek.

**Table 17.**—Estimated salmon escapement into the Crescent River, 24 June through 5 August, 2004.

Date	Sockeye		Pink		Chum		Coho		Chinook		Dolly Varden	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
24-Jun	2,368	2,368	0	0	0	0	0	0	0	0	0	0
25-Jun	1,352	3,720	0	0	0	0	0	0	64	64	0	0
26-Jun	921	4,641	0	0	0	0	0	0	0	64	0	0
27-Jun	1,759	6,400	0	0	136	136	0	0	0	64	0	0
28-Jun	2,694	9,094	0	0	0	136	0	0	0	64	0	0
29-Jun	4,023	13,117	0	0	0	136	0	0	0	64	0	0
30-Jun	1,223	14,340	0	0	0	136	0	0	0	64	0	0
1-Jul	1,415	15,755	0	0	0	136	0	0	0	64	0	0
2-Jul	3,003	18,758	0	0	0	136	0	0	0	64	0	0
3-Jul	3,410	22,168	0	0	0	136	0	0	0	64	0	0
4-Jul	2,649	24,817	0	0	0	136	0	0	0	64	0	0
5-Jul	2,686	27,503	0	0	0	136	0	0	60	124	0	0
6-Jul	2,351	29,854	0	0	0	136	0	0	0	124	188	188
7-Jul	1,698	31,552	0	0	0	136	0	0	0	124	182	370
8-Jul	1,988	33,540	173	173	0	136	0	0	86	210	259	629
9-Jul	1,758	35,298	76	249	77	213	0	0	0	210	76	705
10-Jul	1,675	36,973	0	249	0	213	0	0	0	210	176	881
11-Jul	3,361	40,334	0	249	0	213	0	0	73	283	73	954
12-Jul	4,847	45,181	0	249	0	213	0	0	0	283	120	1,074
13-Jul	7,027	52,208	0	249	0	213	0	0	0	283	234	1,308
14-Jul	7,409	59,617	0	249	82	295	0	0	0	283	250	1,558
15-Jul	4,563	64,180	0	249	0	295	0	0	0	283	261	1,819
16-Jul	2,698	66,878	0	249	0	295	0	0	0	283	0	1,819
17-Jul	2,443	69,321	0	249	0	295	0	0	0	283	0	1,819
18-Jul	2,463	71,784	137	386	0	295	0	0	0	283	0	1,819
19-Jul	2,284	74,068	0	386	0	295	0	0	198	481	596	2,415
20-Jul	2,390	76,458	22	408	22	317	0	0	0	481	0	2,415
21-Jul	1,824	78,282	0	408	64	381	0	0	0	481	196	2,611
22-Jul	1,657	79,939	0	408	0	381	0	0	0	481	123	2,734

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Table 17.—Page 2 of 2.

Date	Sockeye		Pink		Chum		Coho		Chinook		Dolly Varden	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
23-Jul	2,939	82,878	59	467	59	440	0	0	0	481	59	2,793
24-Jul	1,111	83,989	111	578	56	496	0	0	0	481	55	2,848
25-Jul	1,018	85,007	0	578	0	496	0	0	0	481	0	2,848
26-Jul	979	85,986	0	578	0	496	0	0	0	481	0	2,848
27-Jul	332	86,318	0	578	0	496	0	0	0	481	0	2,848
28-Jul	721	87,039	0	578	36	532	0	0	36	517	0	2,848
29-Jul	4,729	91,768	0	578	0	532	0	0	0	517	0	2,848
30-Jul	2,591	94,359	51	629	0	532	52	52	52	569	0	2,848
31-Jul	1,583	95,942	148	777	248	780	0	52	49	618	0	2,848
1-Aug	1,966	97,908	148	925	223	1,003	0	52	0	618	0	2,848
2-Aug	1,706	99,614	144	1,069	0	1,003	0	52	0	618	37	2,885
3-Aug	1,457	101,071	43	1,112	0	1,003	0	52	22	640	22	2,907
4-Aug	1,278	102,349	0	1,112	46	1,049	0	52	0	640	46	2,953
5-Aug	852	103,201	86	1,198	85	1,134	0	52	0	640	21	2,974
Proportion:		94.5%		1.1%		1.0%		0.0%		0.6%		2.7%
Total Count:	109,199											

**Table 18.**—Cumulative proportion by date of sockeye salmon counts recorded in the Crescent River 1984–2004.

Date	Cumulative Proportion <sup>a</sup>																					
	1984	1985	1986 <sup>b</sup>	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
16-Jun	0.001																					
21-Jun	0.008	0.001																				
22-Jun	0.012	0.001											0.001									
23-Jun	0.017	0.001											0.006									
24-Jun	0.020	0.001											0.008	0.004								0.023
25-Jun	0.024	0.001								0.010			0.011	0.014								0.036
26-Jun	0.027	0.001					0.003	0.002		0.019			0.012	0.020								0.045
27-Jun	0.036	0.002					0.007	0.004		0.022			0.013	0.029	0.009	0.001			0.016	0.037	0.062	
28-Jun	0.041	0.002	0.001				0.013	0.006		0.031	0.001	0.000	0.015	0.037	0.016	0.002		0.006	0.072	0.071	0.088	
29-Jun	0.049	0.005	0.005				0.021	0.010		0.034	0.002	0.000	0.018	0.049	0.022	0.007	0.001	0.008	0.112	0.108	0.127	
30-Jun	0.069	0.007	0.008				0.025	0.013		0.038	0.008	0.002	0.036	0.058	0.031	0.038	0.002	0.016	0.149	0.139	0.139	
01-Jul	0.081	0.008	0.017	0.012	0.008	0.008	0.034	0.017	0.045	0.056	0.012	0.002	0.060	0.067	0.034	0.086	0.006	0.036	0.186	0.159	0.153	
02-Jul	0.100	0.012	0.031	0.016	0.038	0.020	0.055	0.031	0.072	0.061	0.015	0.003	0.074	0.091	0.038	0.115	0.008	0.074	0.225	0.172	0.182	
03-Jul	0.118	0.016	0.054	0.020	0.149	0.043	0.065	0.033	0.096	0.077	0.017	0.006	0.087	0.153	0.040	0.137	0.011	0.136	0.271	0.182	0.215	
04-Jul	0.140	0.057	0.077	0.023	0.223	0.096	0.077	0.040	0.115	0.183	0.028	0.010	0.105	0.188	0.043	0.161	0.028	0.199	0.310	0.205	0.240	
05-Jul	0.156	0.138	0.084	0.027	0.269	0.129	0.098	0.061	0.138	0.239	0.035	0.012	0.129	0.214	0.044	0.184	0.093	0.253	0.351	0.225	0.266	
06-Jul	0.170	0.188	0.084	0.058	0.338	0.181	0.128	0.063	0.153	0.246	0.044	0.022	0.148	0.239	0.045	0.204	0.178	0.307	0.398	0.246	0.289	
07-Jul	0.184	0.196	0.110	0.084	0.404	0.231	0.141	0.064	0.159	0.258	0.061	0.029	0.161	0.267	0.056	0.215	0.292	0.338	0.440	0.307	0.306	
08-Jul	0.225	0.226	0.126	0.112	0.488	0.293	0.155	0.079	0.173	0.273	0.086	0.052	0.174	0.300	0.084	0.247	0.365	0.356	0.465	0.323	0.325	
09-Jul	0.268	0.251	0.134	0.160	<b>0.554</b>	0.334	0.184	0.090	0.192	0.297	0.092	0.082	0.181	0.348	0.142	0.267	0.399	0.383	0.480	0.337	0.342	
10-Jul	0.322	0.274	0.144	0.193	0.581	0.369	0.207	0.092	0.212	0.314	0.103	0.106	0.189	0.429	0.196	0.278	0.410	0.399	0.489	0.351	0.358	
11-Jul	0.360	0.293	0.154	0.243	0.598	0.412	0.264	0.100	0.243	0.353	0.132	0.132	0.197	<b>0.500</b>	0.237	0.284	0.418	0.449	0.497	0.356	0.391	
12-Jul	0.387	0.319	0.165	0.269	0.625	0.463	0.286	0.131	0.292	0.386	0.170	0.169	0.202	0.550	0.272	0.328	0.422	0.471	<b>0.521</b>	0.376	0.438	
13-Jul	0.409	0.364	0.184	0.305	0.655	<b>0.502</b>	0.299	0.143	0.335	0.423	0.214	0.204	0.262	0.581	0.294	0.375	0.426	<b>0.505</b>	0.562	0.492	<b>0.506</b>	
14-Jul	0.425	0.388	0.197	0.333	0.688	0.502	0.321	0.188	0.379	<b>0.501</b>	0.251	0.250	0.391	0.606	0.320	0.403	0.433	0.557	0.614	<b>0.526</b>	0.578	
15-Jul	0.454	0.415	0.204	0.370	0.692	0.518	0.345	0.245	0.424	0.580	0.276	0.281	0.471	0.625	0.348	0.410	0.444	0.595	0.628	0.554	0.622	
16-Jul	0.499	0.445	0.213	0.386	0.697	0.611	0.393	0.292	0.463	0.642	0.295	0.317	<b>0.513</b>	0.654	0.389	0.458	0.494	0.638	0.648	0.587	0.648	
17-Jul	<b>0.548</b>	0.480		0.406	0.717	0.674	0.472	0.355	<b>0.512</b>	0.685	0.368	0.364	0.551	0.691	0.434	<b>0.548</b>	<b>0.658</b>	0.677	0.673	0.624	0.672	
18-Jul	0.599	<b>0.506</b>		0.448	0.748	0.691	<b>0.540</b>	0.425	0.539	0.723	0.395	0.400	0.595	0.719	0.487	0.600	0.795	0.697	0.682	0.687	0.696	

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Table 18.—Page 2 of 2.

Date	Cumulative Proportion <sup>a</sup>																				
	1984	1985	1986 <sup>b</sup>	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
19-Jul	0.639	0.525		<b>0.513</b>	0.771	0.710	0.574	0.461	0.573	0.752	0.425	0.417	0.653	0.734	<b>0.546</b>	0.645	0.863	0.706	0.707	0.729	0.718
20-Jul	0.684	0.546		0.548	0.781	0.750	0.610	0.497	0.610	0.772	0.453	0.440	0.692	0.747	0.590	0.703	0.882	0.727	0.732	0.754	0.741
21-Jul	0.721	0.573		0.593	0.808	0.776	0.653	<b>0.524</b>	0.653	0.797	0.460	0.494	0.729	0.759	0.606	0.729	0.924	0.765	0.784	0.785	0.759
22-Jul	0.743	0.596		0.671	0.828	0.804	0.705	0.582	0.701	0.821	0.487	<b>0.598</b>	0.746	0.774	0.622	0.780	0.940	0.803	0.809	0.806	0.775
23-Jul	0.783	0.632		0.773	0.853	0.829	0.742	0.649	0.772	0.845	<b>0.542</b>	0.660	0.757	0.793	0.680	0.815	0.942	0.845	0.829	0.826	0.803
24-Jul	0.802	0.665		0.819	0.885	0.855	0.762	0.688	0.831	0.865	0.581	0.692	0.775	0.814	0.714	0.841	0.948	0.871	0.835	0.842	0.814
25-Jul	0.813	0.698		0.856	0.917	0.884	0.801	0.718	0.877	0.883	0.602	0.725	0.812	0.833	0.726	0.860	0.954	0.898	0.888	0.864	0.824
26-Jul	0.824	0.729		0.877	0.941	0.907	0.839	0.753	0.898	0.908	0.624	0.756	0.864	0.847	0.742	0.881	0.960	0.930	0.929	0.888	0.833
27-Jul	0.838	0.756		0.893	0.959	0.930	0.864	0.801	0.912	0.925	0.665	0.778	0.893	0.865	0.769	0.904	0.968	0.950	0.965	0.906	0.836
28-Jul	0.852	0.775		0.905	0.965	0.958	0.880	0.836	0.928	0.942	0.696	0.803	0.910	0.885	0.785	0.933	0.969	0.958	0.987	0.917	0.843
29-Jul	0.870	0.794		0.915	0.976	0.968	0.896	0.866	0.948	0.953	0.727	0.834	0.924	0.901	0.819	0.960	0.982	0.972	1.000	0.932	0.889
30-Jul	0.882	0.821		0.920	0.989	0.978	0.933	0.885	0.960	0.969	0.766	0.883	0.948	0.926	0.853	0.969	0.985	0.983		0.947	0.914
31-Jul	0.893	1.000		0.938	1.000	0.994	0.956	0.916	0.974	0.981	0.827	0.897	0.965	0.944	0.890	0.974	0.993	0.992		0.969	0.930
01-Aug	1.000			0.960		1.000	0.973	0.966	0.987	0.990	0.875	0.907	0.985	0.959	0.919	0.979	1.000	1.000		0.978	0.949
02-Aug				0.975			0.986	0.978	1.000	1.000	0.914	0.915	1.000	0.972	0.934	0.988				0.987	0.965
03-Aug				0.985			0.993	0.984			0.928	0.939		0.983	0.949	0.992				1.000	0.979
04-Aug				0.994			1.000	0.987			0.949	0.964		0.991	0.962	1.000					0.992
05-Aug				0.996				0.992			0.975	0.980		1.000	0.977						1.000
06-Aug				1.000				0.996			0.983	0.987			0.990						
07-Aug								1.000			0.989	0.993			1.000						
08-Aug											1.000	1.000									
Midpoint	17-Jul	18-Jul		19-Jul	09-Jul	15-Jul	18-Jul	21-Jul	17-Jul	14-Jul	23-Jul	22-Jul	16-Jun	11-Jul	19-Jul	27-Jul	17-Jul	13-Jul	12-Jul	14-Jul	13-Jul
1984-2002 Average Midpoint				17-Jul																	
No. days																					
for 80% <sup>c</sup>	31+	26+		21	23	22	25	21	23	23	24	23	22	27	24	26	16	24	28	28	31
Average 1984-2003:	24 days																				

Note: Bold numbers represent the midpoint of the run.

<sup>a</sup> Proportion accrued on last day (1984–1986, 1988) represents that portion of the escapement estimated to have entered the river after termination of counting operations.

<sup>b</sup> Enumeration activities terminated on 16 July 1986. Estimated proportions are from King and Tarbox (1988).

<sup>c</sup> Inclusive dates: date proportion of escapement reached 10% through date proportion of escapement reached 90%.

**Table 19.**—Daily fish wheel catch by species for the Crescent River, 24 June through 5 August, 2004.

Date	Hours	Sockeye		Pink		Chum		Coho		Chinook		Dolly Varden	
	Open	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
24-Jun	3.0	9	9	0	0	0	0	0	0	0	0	0	0
25-Jun	6.0	21	30	0	0	0	0	0	0	1	1	0	0
26-Jun	4.0	29	59	0	0	0	0	0	0	0	1	0	0
27-Jun	3.0	13	72	0	0	1	1	0	0	0	1	0	0
28-Jun	5.0	41	113	0	0	0	1	0	0	0	1	0	0
29-Jun	1.0	35	148	0	0	0	1	0	0	0	1	0	0
30-Jun	3.0	47	195	0	0	0	1	0	0	0	1	0	0
1-Jul	4.0	38	233	0	0	0	1	0	0	0	1	0	0
2-Jul	3.0	23	256	0	0	0	1	0	0	0	1	0	0
3-Jul	3.0	39	295	0	0	0	1	0	0	0	1	0	0
4-Jul	8.0	15	310	0	0	0	1	0	0	0	1	0	0
5-Jul	8.0	45	355	0	0	0	1	0	0	1	2	0	0
6-Jul	3.0	25	380	0	0	0	1	0	0	0	2	2	2
7-Jul	3.0	28	408	0	0	0	1	0	0	0	2	3	5
8-Jul	3.0	23	431	2	2	0	1	0	0	1	3	3	8
9-Jul	3.0	23	454	1	3	1	2	0	0	0	3	1	9
10-Jul	4.0	38	492	0	3	0	2	0	0	0	3	4	13
11-Jul	3.0	46	538	0	3	0	2	0	0	1	4	1	14
12-Jul	2.0	81	619	0	3	0	2	0	0	0	4	2	16
13-Jul	1.0	60	679	0	3	0	2	0	0	0	4	2	18
14-Jul	2.0	89	768	0	3	1	3	0	0	0	4	3	21
15-Jul	1.0	35	803	0	3	0	3	0	0	0	4	2	23
16-Jul	4.5	22	825	0	3	0	3	0	0	0	4	0	23
17-Jul	9.0	22	847	0	3	0	3	0	0	0	4	0	23
18-Jul	3.0	18	865	1	4	0	3	0	0	0	4	0	23
19-Jul	4.0	23	888	0	4	0	3	0	0	2	6	6	29
20-Jul	7.0	108	996	1	5	1	4	0	0	0	6	15	44
21-Jul	6.0	28	1,024	0	5	1	5	0	0	0	6	3	47
22-Jul	4.0	27	1,051	0	5	0	5	0	0	0	6	2	49
23-Jul	1.0	50	1,101	1	6	1	6	0	0	0	6	1	50
24-Jul	8.0	20	1,121	2	8	1	7	0	0	0	6	1	51
25-Jul	5.0	20	1,141	0	8	0	7	0	0	0	6	0	51
26-Jul	8.0	2	1,143	0	8	0	7	0	0	1	7	1	52
27-Jul	14.0	5	1,148	0	8	0	7	0	0	0	7	0	52
28-Jul	7.0	20	1,168	0	8	1	8	0	0	1	8	0	52
29-Jul	1.0	57	1,225	0	8	0	8	0	0	0	8	0	52
30-Jul	2.0	50	1,275	1	9	0	8	1	1	1	9	0	52
31-Jul	2.0	32	1,307	3	12	5	13	0	1	1	10	0	52
1-Aug	3.0	53	1,360	4	16	6	19	0	1	0	10	0	52
2-Aug	2.0	47	1,407	4	20	0	19	0	1	0	10	1	53
3-Aug	4.0	67	1,474	2	22	0	19	0	1	1	11	1	54
4-Aug	2.0	28	1,502	0	22	1	20	0	1	0	11	1	55
5-Aug	4.0	80	1,582	8	30	8	28	0	1	0	11	2	57
Proportion:			92.6%		1.8%		1.6%		0.1%		0.6%		3.3%
Total Catch:			1,709										
Time Operated:			176.5	hours									
CPUE:			9.7	fish/hour									

**Table 20.**—Age composition of sockeye salmon sampled from the Crescent River 1979–2004.

Year	Percentage Composition by Age Class								Sample Size
	1.1	1.2	1.3	1.4	2.1	2.2	2.3	Other	
1979	0.8	30.9	67.4	0.1	0.1	0.7	0.0	0.0	643
1980	0.0	6.6	87.4	1.8	0.0	2.6	1.6	0.0	511
1981	0.0	8.0	34.0	0.1	0.1	10.6	47.2	0.0	1,117
1982	0.0	12.9	79.2	0.1	0.0	0.8	7.0	0.0	711
1983	0.0	10.9	42.3	0.2	0.6	27.4	18.6	0.0	731
1984	0.0	3.5	16.9	0.0	0.0	20.0	59.4	0.2	780
1985	0.2	4.7	31.3	0.0	0.3	20.5	43.0	0.0	594
1986	0.0	6.5	15.8	0.0	0.0	13.0	64.0	0.7	139
1987	0.0	2.6	47.7	0.0	0.0	4.2	45.0	0.5	191
1988	0.0	10.4	44.9	0.5	0.1	17.8	26.1	0.1	741
1989	0.0	0.7	45.4	0.1	0.0	2.0	51.2	0.6	711
1990	0.0	4.1	51.4	0.3	0.2	3.4	40.1	0.5	591
1991	0.0	14.9	50.4	0.3	0.0	16.8	16.5	1.1	357
1992	0.0	2.6	21.7	0.0	0.0	12.4	61.9	1.5	194
1993	0.2	8.8	37.2	0.0	0.9	5.8	46.9	0.2	465
1994	0.2	6.6	49.6	0.4	0.4	12.3	30.5	0.2	547
1995	0.4	9.2	18.4	0.6	0.2	9.4	61.7	0.2	543
1996	0.0	15.3	25.4	0.0	0.0	23.9	34.9	0.5	393
1997	0.0	10.6	56.0	0.0	0.2	6.6	26.6	0.0	640
1998	0.0	9.9	44.5	0.4	0.0	10.1	35.2	0.0	577
1999	0.0	21.4	39.4	0.4	0.1	9.2	29.3	0.2	912
2000	0.0	2.5	72.8	0.0	0.0	2.2	22.4	0.0	357
2001	0.0	15.7	21.0	0.9	0.5	22.7	38.8	0.4	572
2002	0.0	19.1	33.7	0.3	0.1	11.2	35.5	0.1	750
2003	0.4	14.4	51.1	0.0	0.3	13.4	20.3	0.1	1,080
2004	0.0	14.1	31.3	0.2	0.0	16.0	38.0	0.4	489
1979–2003 Average	0.1	10.1	43.4	0.3	0.2	11.2	34.5	0.3	594

*Note:* Percentages weighted by total numbers in the escapement: 1979–1981, 1986–2002. Corrections made to table by T. Tobias, October, 2002.

*Source:* T. Tobias, Commercial Fisheries Technician, ADF&G, Soldotna; personal communication.

**Table 21.**—Length composition of the major age classes of sockeye salmon collected in the Crescent River, 1980–2004.

Year	Age Class	Male		Female		Ratio Male-Female	
		Average Length (mm)	Sample Size	Average Length (mm)	Sample Size		
1980	1.2	472	47	471	31	1.5:1	
1981		522	59	491	33	1.8:1	
1982		467	47	487	25	1.9:1	
1991		517	36	490	17	2.1:1	
1996		477	41	510	19	2.2:1	
1997		511	81	495	82	1.0:1	
1999		468	136	478	59	2.3:1	
2001		462	61	486	29	2.1:1	
2002		471	104	481	39	2.7:1	
2003		474	90	477	65	1.4:1	
2004		460	48	484	21	2.3:1	
1980–2003 Average		484	70	487	40	1.8:1	
1980		1.3	568	167	549	223	0.7:1
1981			576	121	555	172	0.7:1
1982	586		303	556	259	1.2:1	
1983	570		111	542	169	0.7:1	
1984	574		60	552	72	0.8:1	
1985	565		75	551	111	0.7:1	
1987	601		54	573	37	1.5:1	
1988	581		195	550	138	1.4:1	
1989	593		320	561	271	1.2:1	
1990	592		184	571	120	1.5:1	
1991	560		105	543	75	1.4:1	
1992	555		24	535	18	1.3:1	
1993	578		81	559	92	0.9:1	
1994	563		124	547	147	0.8:1	
1995	581		40	555	60	0.7:1	
1996	607		50	586	50	1.0:1	
1997	574		142	547	119	1.2:1	
1998	583		114	556	143	0.8:1	
1999	575		164	545	195	0.8:1	
2000	598		99	565	161	1.1:1	
2001	580	45	561	75	0.6:1		
2002	582	103	563	150	0.7:1		
2003	577	235	558	317	0.7:1		
2004	565	72	544	81	0.9:1		
1980–2003 Average		579	127	556	138	0.9:1	

-continued-

**Table 21.**—Page 2 of 2.

Year	Age Class	Male		Female		Ratio Male-Female
		Average Length (mm)	Sample Size	Average Length (mm)	Sample Size	
1981	2.2	487	40	519	57	0.7:1
1983		494	93	488	89	1.0:1
1984		499	81	507	75	1.1:1
1985		496	75	490	47	1.6:1
1988		487	72	496	60	1.2:1
1991		515	42	498	18	2.3:1
1992		486	10	492	14	0.7:1
1994		466	54	481	13	4.2:1
1996		497	65	525	29	2.2:1
1998		497	27	515	31	0.9:1
2001		481	87	494	43	2.0:1
2002		492	48	506	36	1.3:1
2003		498	81	496	64	1.3:1
2004		480	47	482	31	1.5:1
1981–2003 Average		491	58	501	43	1.4:1
1980	2.3	584	158	554	237	0.7:1
1983		569	43	550	80	0.5:1
1984		581	261	553	202	1.3:1
1985		568	94	551	161	0.6:1
1986		573	44	556	45	1.0:1
1987		595	49	573	37	1.3:1
1988		585	110	556	83	1.3:1
1989		594	72	568	37	1.9:1
1990		601	165	571	72	2.3:1
1991		558	36	537	23	1.6:1
1992		572	58	547	62	0.9:1
1993		585	104	558	114	0.9:1
1994		570	86	549	81	1.1:1
1995		581	154	553	181	0.9:1
1996		604	222	577	72	3.1:1
1997		590	84	569	86	1.0:1
1998		584	85	563	118	0.7:1
1999		575	138	545	129	1.1:1
2000		599	132	564	225	1.1:1
2001		578	91	559	131	0.7:1
2002		589	108	563	158	0.7:1
2003		579	96	559	123	0.8:1
2004		569	84	545	102	0.8:1
1980–2003 Average		582	109	558	112	1.0:1
2004 Summary (all ages)		531	252	531	237	1.1:1

*Note:* Length measured from mid-eye to tail fork.

*Source:* 1980–1997 source D. Waltemyer, Commercial Fisheries Biologist, ADF&G, Soldotna; personal communication. 1998–2004 source T. Tobias, Commercial Fisheries Technician, ADF&G, Soldotna; personal communication.

**Table 22.**—Estimated salmon escapement in the Yentna River, 7 July through 12 August, 2004.

Date	Sockeye		Pink		Chum		Coho		Chinook	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7-Jul	122	122	0	0	0	0	17	17	59	59
8-Jul	186	308	22	22	0	0	71	88	28	87
9-Jul	109	417	0	22	4	4	144	232	72	159
10-Jul	113	530	0	22	0	4	89	321	48	207
11-Jul	71	601	4	26	26	30	57	378	30	237
12-Jul	93	694	40	66	40	70	171	549	38	275
13-Jul	65	759	65	131	79	149	302	851	3	278
14-Jul	237	996	327	458	187	336	952	1,803	36	314
15-Jul	5,587	6,583	3,035	3,493	660	996	4,618	6,421	50	364
16-Jul	12,179	18,762	10,846	14,339	761	1,757	5,893	12,314	20	384
17-Jul	8,118	26,880	11,272	25,611	780	2,537	5,165	17,479	61	445
18-Jul	5,690	32,570	8,970	34,581	760	3,297	4,030	21,509	75	520
19-Jul	4,422	36,992	8,401	42,982	343	3,640	922	22,431	1,047	1,567
20-Jul	2,549	39,541	5,255	48,237	260	3,900	1,326	23,757	0	1,567
21-Jul	1,326	40,867	4,859	53,096	185	4,085	1,565	25,322	15	1,582
22-Jul	1,412	42,279	7,333	60,429	343	4,428	2,849	28,171	17	1,599
23-Jul	1,859	44,138	16,867	77,296	276	4,704	5,337	33,508	37	1,636
24-Jul	2,718	46,856	16,471	93,767	375	5,079	3,032	36,540	33	1,669
25-Jul	1,720	48,576	10,988	104,755	181	5,260	4,675	41,215	26	1,695
26-Jul	2,093	50,669	16,907	121,662	567	5,827	7,725	48,940	0	1,695
27-Jul	780	51,449	11,732	133,394	314	6,141	5,680	54,620	9	1,704
28-Jul	512	51,961	5,892	139,286	109	6,250	1,364	55,984	0	1,704
29-Jul	733	52,694	7,211	146,497	201	6,451	1,266	57,250	0	1,704
30-Jul	1,221	53,915	15,385	161,882	627	7,078	2,652	59,902	0	1,704
31-Jul	1,723	55,638	15,879	177,761	599	7,677	4,458	64,360	29	1,733
1-Aug	797	56,435	9,392	187,153	816	8,493	4,146	68,506	0	1,733
2-Aug	1,249	57,684	5,475	192,628	307	8,800	3,379	71,885	0	1,733
3-Aug	1,193	58,877	3,450	196,078	475	9,275	1,853	73,738	19	1,752
4-Aug	1,795	60,672	4,453	200,531	568	9,843	2,247	75,985	0	1,752
5-Aug	2,180	62,852	4,877	205,408	569	10,412	2,006	77,991	0	1,752
6-Aug	2,043	64,895	3,825	209,233	1,173	11,585	2,756	80,747	0	1,752
7-Aug	1,695	66,590	3,495	212,728	867	12,452	2,554	83,301	0	1,752
8-Aug	1,340	67,930	2,752	215,480	916	13,368	2,803	86,104	0	1,752
9-Aug	1,051	68,981	2,116	217,596	981	14,349	2,436	88,540	0	1,752
10-Aug	921	69,902	1,128	218,724	912	15,261	1,682	90,222	0	1,752
11-Aug	873	70,775	901	219,625	689	15,950	1,115	91,337	6	1,758
12-Aug	506	71,281	722	220,347	465	16,415	1,006	92,343	0	1,758
Proportion:		17.7%		54.8%		4.1%		23.0%		0.4%
Total count:		402,144								

**Table 23.**—Cumulative proportion by date of sockeye salmon counts recorded in the Yentna River 1981–2004.

Date	Cumulative Proportion <sup>a</sup>																								
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
28-Jun																									
29-Jun	0.001					0.001																			
30-Jun	0.004					0.002																			
01-Jul	0.008	0.001	0.001	0.001		0.002																			
02-Jul	0.013	0.001	0.001	0.001	0.001	0.003	0.001																		
03-Jul	0.016	0.001	0.002	0.002	0.001	0.003	0.001																		
04-Jul	0.017	0.002	0.003	0.003	0.001	0.004	0.002																		
05-Jul	0.018	0.002	0.003	0.004	0.001	0.005	0.002																		
06-Jul	0.020	0.002	0.004	0.004	0.002	0.005	0.003										0.002								
07-Jul	0.021	0.002	0.004	0.005	0.003	0.006	0.003	0.004	0.003	0.002	0.000	0.002	0.001	0.002	0.001	0.001	0.004	0.000	0.007	0.005	0.029	0.004	0.002		
08-Jul	0.023	0.002	0.004	0.005	0.003	0.006	0.004	0.008	0.006	0.005	0.001	0.003	0.002	0.004	0.001	0.003	0.006	0.006	0.001	0.013	0.010	0.101	0.007	0.004	
09-Jul	0.026	0.002	0.005	0.006	0.004	0.007	0.004	0.012	0.009	0.008	0.001	0.005	0.004	0.008	0.002	0.005	0.009	0.010	0.002	0.020	0.015	0.155	0.010	0.006	
10-Jul	0.056	0.002	0.005	0.007	0.005	0.008	0.005	0.016	0.012	0.010	0.002	0.007	0.005	0.010	0.003	0.007	0.011	0.017	0.005	0.024	0.023	0.187	0.014	0.007	
11-Jul	0.092	0.003	0.006	0.009	0.006	0.009	0.005	0.019	0.014	0.013	0.002	0.008	0.006	0.013	0.004	0.007	0.013	0.030	0.010	0.033	0.029	0.207	0.018	0.008	
12-Jul	0.155	0.003	0.008	0.011	0.007	0.010	0.005	0.022	0.015	0.014	0.002	0.010	0.007	0.016	0.005	0.009	0.016	0.043	0.017	0.046	0.041	0.226	0.023	0.010	
13-Jul	0.230	0.003	0.011	0.012	0.008	0.011	0.006	0.025	0.016	0.016	0.003	0.012	0.008	0.020	0.006	0.011	0.030	0.051	0.024	0.075	0.050	0.236	0.051	0.011	
14-Jul	0.344	0.003	0.034	0.015	0.009	0.011	0.007	0.029	0.019	0.017	0.003	0.016	0.009	0.022	0.006	0.013	0.087	0.056	0.031	0.124	0.058	0.251	0.126	0.014	
15-Jul	0.454	0.004	0.059	0.017	0.010	0.014	0.008	0.034	0.023	0.019	0.004	0.022	0.014	0.024	0.007	0.022	0.149	0.059	0.044	0.263	0.068	0.271	0.192	0.092	
16-Jul	<b>0.521</b>	0.005	0.096	0.023	0.010	0.022	0.010	0.039	0.026	0.020	0.005	0.035	0.134	0.026	0.007	0.131	0.197	0.064	0.057	0.407	0.098	0.328	0.239	0.263	
17-Jul	0.563	0.016	0.131	0.142	0.011	0.027	0.014	0.043	0.051	0.022	0.005	0.062	0.284	0.029	0.012	0.348	0.229	0.072	0.068	0.490	0.184	0.446	0.261	0.377	
18-Jul	0.599	0.043	0.179	0.232	0.012	0.036	0.020	0.046	0.103	0.025	0.009	0.086	0.360	0.056	0.022	<b>0.519</b>	0.254	0.094	0.081	<b>0.600</b>	0.270	<b>0.535</b>	0.316	0.457	
19-Jul	0.638	0.155	0.351	0.345	0.013	0.041	0.027	0.090	0.161	0.105	0.028	0.120	0.382	0.115	0.068	0.614	0.280	0.159	0.108	0.730	0.359	0.570	0.372	<b>0.519</b>	
20-Jul	0.681	0.329	<b>0.567</b>	0.458	0.014	0.042	0.034	0.197	0.202	0.217	0.100	0.148	0.420	0.167	0.160	0.671	0.316	0.239	0.160	0.849	0.414	0.628	0.489	0.555	
21-Jul	0.732	<b>0.527</b>	0.693	<b>0.554</b>	0.014	0.043	0.047	0.269	0.234	0.284	0.193	0.184	0.464	0.250	0.251	0.702	0.367	0.304	0.222	0.910	0.423	0.684	<b>0.611</b>	0.573	
22-Jul	0.801	0.627	0.722	0.626	0.016	0.052	0.059	0.303	0.280	0.327	0.302	0.229	<b>0.513</b>	0.297	0.335	0.745	0.434	0.327	0.319	0.950	0.429	0.734	0.678	0.593	
23-Jul	0.846	0.665	0.758	0.681	0.019	0.162	0.107	0.375	0.359	0.383	0.378	0.296	0.574	0.333	0.378	0.784	0.492	0.338	0.433	0.969	0.480	0.754	0.706	0.619	
24-Jul	0.882	0.711	0.786	0.755	0.145	0.193	0.218	0.484	0.453	0.452	0.425	0.373	0.647	0.397	0.426	0.822	<b>0.544</b>	0.357	<b>0.510</b>	0.978	<b>0.563</b>	0.783	0.747	0.657	
25-Jul	0.905	0.734	0.824	0.785	0.359	0.253	0.331	<b>0.630</b>	<b>0.532</b>	<b>0.505</b>	0.451	0.447	0.709	0.426	0.496	0.856	0.606	0.378	0.567	0.984	0.630	0.807	0.783	0.681	
26-Jul	0.925	0.780	0.867	0.808	<b>0.507</b>	0.371	0.442	0.771	0.646	0.573	<b>0.505</b>	<b>0.519</b>	0.763	<b>0.517</b>	<b>0.580</b>	0.880	0.668	0.403	0.605	0.989	0.704	0.820	0.813	0.711	
27-Jul	0.940	0.811	0.894	0.836	0.636	0.491	<b>0.528</b>	0.821	0.749	0.667	0.575	0.606	0.810	0.557	0.678	0.899	0.697	0.426	0.653	0.994	0.803	0.835	0.844	0.722	
28-Jul	0.950	0.831	0.905	0.855	0.782	<b>0.606</b>	0.587	0.858	0.799	0.734	0.637	0.674	0.831	0.599	0.743	0.913	0.722	0.454	0.702	0.996	0.880	0.855	0.865	0.729	
29-Jul	0.958	0.847	0.913	0.866	0.903	0.752	0.625	0.886	0.854	0.769	0.674	0.734	0.857	0.662	0.796	0.928	0.743	0.493	0.767	0.996	0.921	0.871	0.881	0.739	
30-Jul	0.969	0.859	0.921	0.874	0.942	0.831	0.655	0.916	0.864	0.796	0.720	0.794	0.893	0.712	0.832	0.941	0.767	<b>0.560</b>	0.804	0.997	0.944	0.891	0.892	0.756	
31-Jul	0.976	0.890	0.925	0.885	0.960	0.861	0.686	0.937	0.868	0.825	0.754	0.825	0.927	0.750	0.852	0.943	0.795	0.622	0.848	0.999	0.954	0.906	0.909	0.781	
01-Aug	0.980	0.933	0.929	0.893	0.970	0.882	0.709	0.946	0.873	0.859	0.779	0.858	0.938	0.788	0.875	0.948	0.826	0.684	0.878	1.000	0.970	0.918	0.941	0.792	
02-Aug	0.986	0.948	0.937	0.901	0.978	0.908	0.750	0.960	0.879	0.907	0.806	0.881	0.950	0.830	0.897	0.954	0.852	0.762	0.895		0.985	0.931	0.963	0.809	
03-Aug	0.988	0.955	0.941	0.909	0.983	0.917	0.789	0.969	0.889	0.947	0.850	0.896	0.967	0.862	0.915	0.965	0.870	0.830	0.914		0.991	0.947	0.977	0.826	
04-Aug	0.990	0.962	0.945	0.920	0.987	0.924	0.825	0.975	0.907	0.962	0.891	0.910	0.985	0.889	0.928	0.981	0.893	0.876	0.934		0.994	0.964	0.983	0.851	

-continued-

Table 23.—Page 2 of 2.

Date	Cumulative Proportion <sup>a</sup>																							
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
05-Aug	0.991	0.965	0.949	0.926	0.990	0.935	0.857	0.981	0.923	0.971	0.930	0.915	0.992	0.919	0.944	0.991	0.911	0.907	0.947		1.000	0.979	0.990	0.882
06-Aug	0.992	0.967	0.953	0.934	0.994	0.940	0.875	0.984	0.936	0.978	0.942	0.922	0.996	0.942	0.975	0.996	0.923	0.927	0.955			0.990	1.000	0.910
07-Aug	0.992	0.970	0.955	0.939	0.997	1.000	0.889	0.989	0.944	0.985	0.959	0.929	1.000	0.962	0.990	1.000	0.931	0.938	0.963			0.996		0.934
08-Aug	0.992	0.972	0.958	0.944	1.000		0.900	0.992	0.949	0.990	0.975	0.941		0.974	0.992		0.945	0.947	0.971			1.000		0.953
09-Aug	0.993	0.975	0.959	0.949			0.932	0.994	0.954	0.994	0.986	0.966		0.984	0.996		0.961	0.953	0.978					0.968
10-Aug	0.994	0.977	0.959	0.954			0.962	0.996	0.958	0.995	0.994	0.984		0.992	1.000		0.982	0.959	0.988					0.981
11-Aug	0.995	0.979	0.962	0.958			0.986	1.000	0.962	0.998	0.999	1.000		0.996			0.992	0.966	0.994					0.993
12-Aug	0.996	0.981	0.968	0.962			0.996		0.966	1.000	1.000			1.000			1.000	0.973	0.997					1.000
13-Aug	0.997	0.982	0.974	0.965			1.000		0.975									0.979	0.999					
14-Aug	0.997	0.984	0.977	0.968					0.985									0.984	1.000					
15-Aug	0.998	0.985	0.979	0.970					0.992									0.986						
16-Aug	0.998	0.986	0.982	0.973					0.995									0.988						
17-Aug	0.998	0.987	0.985	0.975					0.997									0.991						
18-Aug	0.998	0.988	0.987	0.977					0.998									0.993						
19-Aug	0.998	0.989	0.988	0.979					0.999									0.996						
20-Aug	0.999	0.990	0.990	0.980					1.000									0.998						
21-Aug	0.999	0.990	0.991	0.981														1.000						
22-Aug	0.999	0.990	0.992	0.984																				
23-Aug	0.999	0.991	0.993	0.987																				
24-Aug	1.000	0.992	0.994	0.989																				
25-Aug		0.993	0.994	0.992																				
26-Aug		0.994	0.995	0.994																				
27-Aug		0.994	0.996	0.996																				
28-Aug		0.995	0.997	0.996																				
29-Aug		0.996	0.998	0.998																				
30-Aug		0.997	0.998	0.999																				
31-Aug		0.997	0.999	0.999																				
01-Sep		0.998	0.999	1.000																				
02-Sep		0.999	0.999																					
03-Sep		0.999	0.999																					
04-Sep		1.000	1.000																					
Midpoint:	16-Jul	21-Jul	20-Jul	21-Jul	26-Jul	28-Jul	27-Jul	25-Jul	25-Jul	25-Jul	26-Jul	26-Jul	22-Jul	26-Jul	26-Jul	18-Jul	24-Jul	30-Jul	24-Jul	18-Jul	24-Jul	18-Jul	21-Jul	19-Jul
1981-2003 Average Midpoint:	23-Jul																							
No. days																								
for 80% <sup>b</sup> :	14	14	12	17	6	11+	17	11	18	15	17	17	16	19	15	13	22	18	16	8	13	24	17	22
1981-2003 Average:	15 days																							

Note: Bold numbers represent the midpoint of the run.

<sup>a</sup> Proportion accrued on last day (1986) represents that portion of the escapement estimated after enumeration operations.

<sup>b</sup> Inclusive dates: date proportion of escapement reached 10% through date proportion of escapement reached 90%.

**Table 24.**—Daily fish wheel catch by species for the north bank of the Yentna River, 7 July through 12 August, 2004.

Date	Hours	Sockeye		Pink		Chum		Coho		Chinook		Other <sup>a</sup>	
	Open	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7-Jul	7.9	2	2	0	0	0	0	0	0	1	1	3	3
8-Jul	9.0	5	7	1	1	0	0	3	3	1	2	2	5
9-Jul	9.3	2	9	0	1	0	0	3	6	2	4	3	8
10-Jul	7.7	3	12	0	1	0	0	2	8	2	6	5	13
11-Jul	8.6	2	14	0	1	1	1	2	10	1	7	0	13
12-Jul	8.7	3	17	1	2	1	2	8	18	2	9	2	15
13-Jul	9.2	1	18	3	5	3	5	11	29	0	9	3	18
14-Jul	7.5	3	21	11	16	6	11	34	63	1	10	2	20
15-Jul	6.5	17	38	32	48	8	19	50	113	1	11	6	26
16-Jul	5.9	40	78	108	156	14	33	42	155	1	12	2	28
17-Jul	6.2	20	98	81	237	7	40	59	214	3	15	1	29
18-Jul	6.1	8	106	59	296	3	43	17	231	2	17	0	29
19-Jul	5.9	4	110	62	358	2	45	15	246	0	17	2	31
20-Jul	7.7	14	124	68	426	2	47	20	266	0	17	7	38
21-Jul	5.7	10	134	44	470	0	47	8	274	1	18	4	42
22-Jul	7.0	14	148	206	676	19	66	59	333	0	18	2	44
23-Jul	6.0	10	158	255	931	6	72	32	365	0	18	2	46
24-Jul	7.0	12	170	182	1,113	1	73	30	395	0	18	0	46
25-Jul	8.5	10	180	213	1,326	6	79	58	453	0	18	1	47
26-Jul	7.5	13	193	313	1,639	11	90	93	546	0	18	0	47
27-Jul	6.1	8	201	330	1,969	10	100	77	623	2	20	1	48
28-Jul	4.6	24	225	533	2,502	13	113	72	695	0	20	0	48
29-Jul	4.8	49	274	706	3,208	19	132	97	792	0	20	0	48
30-Jul	4.1	9	283	414	3,622	11	143	76	868	0	20	1	49
31-Jul	5.4	6	289	229	3,851	12	155	76	944	0	20	1	50
1-Aug	5.0	3	292	113	3,964	15	170	47	991	0	20	0	50
2-Aug	5.4	6	298	88	4,052	2	172	41	1,032	0	20	3	53
3-Aug	5.6	16	314	62	4,114	13	185	39	1,071	2	22	1	54
4-Aug	5.4	14	328	102	4,216	17	202	39	1,110	0	22	4	58
5-Aug	6.5	12	340	119	4,335	21	223	34	1,144	0	22	1	59
6-Aug	6.4	10	350	85	4,420	9	232	40	1,184	0	22	2	61
7-Aug	4.8	4	354	31	4,451	7	239	26	1,210	0	22	0	61
8-Aug	7.1	13	367	39	4,490	11	250	63	1,273	0	22	0	61
9-Aug	5.4	4	371	51	4,541	20	270	38	1,311	0	22	1	62
10-Aug	8.2	8	379	31	4,572	26	296	47	1,358	0	22	0	62
11-Aug	7.3	9	388	28	4,600	25	321	31	1,389	0	22	1	63
12-Aug	3.2	6	394	13	4,613	17	338	17	1,406	0	22	1	64
Proportion:			6%		67%		5%		21%		0%		1%
Total Catch: 6,837 fish													
Time Operated: 243.3 hours													
CPUE: 28.1 fish/hour													

<sup>a</sup> Fish wheel catch included whitefish and long-nosed sucker.

**Table 25.**—Daily fish wheel catch by species for the south bank of the Yentna River, 7 July through 12 August, 2004.

Date	Hours Open	Sockeye		Pink		Chum		Coho		Chinook		Other <sup>a</sup>	
		Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
07-Jul	9.0	5	5	0	0	0	0	4	4	2	2	4	4
08-Jul	7.0	13	18	0	0	0	0	1	5	1	3	0	4
09-Jul	7.0	8	26	0	0	1	1	8	13	0	3	0	4
10-Jul	8.5	5	31	0	0	0	1	5	18	0	3	0	4
11-Jul	9.3	14	45	2	2	2	3	7	25	4	7	0	4
12-Jul	9.5	15	60	8	10	8	11	11	36	1	8	2	6
13-Jul	9.0	14	74	3	13	7	18	30	66	1	9	1	7
14-Jul	7.5	30	104	23	36	14	32	62	128	3	12	0	7
15-Jul	5.1	162	266	76	112	16	48	115	243	1	13	1	8
16-Jul	3.1	167	433	127	239	7	55	74	317	0	13	0	8
17-Jul	4.0	109	542	136	375	9	64	56	373	0	13	0	8
18-Jul	3.8	108	650	160	535	14	78	74	447	1	14	0	8
19-Jul	4.9	96	746	167	702	7	85	16	463	23	37	0	8
20-Jul	7.2	101	847	185	887	10	95	45	508	0	37	1	9
21-Jul	6.2	70	917	250	1,137	11	106	86	594	0	37	0	9
22-Jul	7.1	77	994	342	1,479	12	118	142	736	1	38	0	9
23-Jul	2.6	48	1,042	395	1,874	6	124	137	873	1	39	0	9
24-Jul	3.7	78	1,120	433	2,307	11	135	81	954	1	40	0	9
25-Jul	4.5	63	1,183	353	2,660	5	140	161	1,115	1	41	1	10
26-Jul	4.2	63	1,246	451	3,111	15	155	220	1,335	0	41	1	11
27-Jul	3.7	36	1,282	495	3,606	13	168	258	1,593	0	41	1	12
28-Jul	3.4	56	1,338	579	4,185	10	178	147	1,740	0	41	0	12
29-Jul	3.2	86	1,424	658	4,843	19	197	138	1,878	0	41	0	12
30-Jul	3.0	58	1,482	550	5,393	26	223	92	1,970	0	41	0	12
31-Jul	3.3	57	1,539	458	5,851	16	239	124	2,094	1	42	0	12
01-Aug	3.7	27	1,566	275	6,126	21	260	123	2,217	0	42	1	13
02-Aug	4.8	54	1,620	209	6,335	13	273	135	2,352	0	42	0	13
03-Aug	5.0	68	1,688	187	6,522	23	296	97	2,449	0	42	1	14
04-Aug	5.1	123	1,811	252	6,774	29	325	137	2,586	0	42	1	15
05-Aug	5.3	164	1,975	311	7,085	32	357	137	2,723	0	42	1	16
06-Aug	5.8	128	2,103	208	7,293	72	429	160	2,883	0	42	1	17
07-Aug	5.5	96	2,199	179	7,472	45	474	128	3,011	0	42	1	18
08-Aug	5.7	114	2,313	223	7,695	76	550	206	3,217	0	42	0	18
09-Aug	4.9	93	2,406	143	7,838	70	620	186	3,403	0	42	2	20
10-Aug	5.8	113	2,519	114	7,952	91	711	169	3,572	0	42	0	20
11-Aug	6.5	131	2,650	112	8,064	81	792	143	3,715	1	43	0	20
12-Aug	5.0	62	2,712	83	8,147	43	835	117	3,832	0	43	1	21
Proportion:			17%		52%		5%		25%		0%		0%
Total Catch:	15,590												
Time Operated:	203.0 hours												
CPUE:	76.8 fish/hour												

<sup>a</sup> Fish wheel catch included round whitefish and long-nosed sucker.

**Table 26.**—Age composition of sockeye salmon sampled from the Yentna River 1986–2004.

Year	Percentage Composition by Age Class											Size
	0.2	0.3	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	Other	
1986	1.0	1.1	0.0	21.2	65.3	0.2	0.3	4.7	6.2	0.0	0.0	688
1987	1.3	2.4	0.9	23.3	50.6	1.0	0.0	8.6	11.7	0.0	0.0	1,089
1988	2.7	2.4	0.4	33.5	41.9	0.2	1.7	6.5	10.4	0.1	0.0	1,727
1989	4.1	6.2	0.7	20.3	53.7	0.3	0.5	5.5	8.6	0.0	0.0	1,602
1990	0.8	2.4	0.3	29.9	47.6	0.7	0.1	9.8	8.2	0.1	0.2	1,916
1991	2.1	10.6	0.1	25.2	43.6	0.1	0.1	7.1	11.0	0.1	0.1	1,509
1992	1.6	0.7	1.0	31.4	29.2	0.1	0.4	17.1	18.2	0.1	0.4	1,451
1993	1.0	4.6	0.1	32.1	35.5	0.0	0.4	11.7	14.5	0.1	0.0	1,390
1994	1.3	3.9	0.6	23.2	43.2	0.2	0.0	9.7	17.6	0.0	0.3	637
1995	2.2	5.1	0.8	19.7	51.3	0.4	0.2	8.5	11.6	0.0	0.2	507
1996	3.2	3.2	0.4	25.5	43.8	0.0	0.4	9.4	14.0	0.0	0.0	466
1997	1.1	10.5	0.1	32.4	43.7	0.1	0.1	4.7	7.2	0.0	0.1	751
1998	0.7	5.7	0.3	15.7	62.7	0.3	0.0	4.0	10.5	0.0	0.0	1,500
1999	3.6	3.4	0.0	23.4	52.0	0.9	0.0	8.6	8.1	0.0	0.0	444
2000	0.0	5.9	0.0	8.6	61.5	0.2	0.0	3.3	20.2	0.2	0.0	546
2001	0.0	3.4	0.8	21.3	47.8	0.0	0.4	8.4	17.7	0.0	0.2	475
2002	1.7	2.0	0.7	28.8	51.0	0.0	0.0	5.5	10.2	0.0	0.2	459
2003	0.5	2.5	0.1	16.1	63.6	0.4	0.5	6.0	10.3	0.0	0.0	812
2004	0.6	1.1	0.7	17.0	50.0	0.6	0.0	8.3	21.7	0.0	0.0	460
1986–2003 Average	1.8	4.4	0.4	24.6	48.5	0.3	0.3	7.8	11.8	0.0	0.1	1,043

*Note:* Percentages weighted by total numbers in the escapement: 1979–1981, 1986–2002. Corrections to table made by T. Tobias, October, 2002.

*Source:* T. Tobias, Commercial Fisheries Technician, ADF&G, Soldotna; personal communication.

**Table 27.**—Length composition of the major age classes of sockeye salmon collected in the Yentna River 1986–2004.

Year	Age Class	Male		Female		Ratio Male-Female	
		Average Length (mm)	Sample Size	Average Length (mm)	Sample Size		
1986	1.2	455	104	472	52	2.0:1	
1987		484	158	477	156	1.0:1	
1988		461	408	486	170	2.4:1	
1989		463	246	485	122	2.0:1	
1990		446	305	446	238	1.3:1	
1991		460	253	484	130	2.0:1	
1992		443	360	469	115	3.1:1	
1993		465	279	494	167	1.7:1	
1994		468	107	484	41	2.6:1	
1995		460	58	472	42	1.4:1	
1996		463	78	469	41	1.9:0	
1997		479	110	479	133	0.8:1	
1998		485	104	486	132	0.8:1	
1999		469	56	484	48	1.2:1	
2001		477	53	490	48	1.1:1	
2002		486	76	495	56	1.4:1	
2003		473	77	486	54	1.4:1	
2004		466	53	490	25	2.1:1	
1986–2003 Average		473	75	482	62	1.2:1	
1986		1.3	579	172	563	216	0.8:1
1987	591		246	565	222	1.1:1	
1988	580		365	552	359	1.0:1	
1989	575		390	553	474	0.8:1	
1990	573		400	552	526	0.7:1	
1991	562		301	542	356	0.9:1	
1992	546		188	543	242	0.8:1	
1993	561		288	549	266	0.9:1	
1994	596		133	561	142	0.9:1	
1995	568		124	545	136	0.9:1	
1996	589		107	568	97	1.1:1	
1997	585		155	555	173	0.9:1	
1998	562		453	538	487	0.9:1	
1999	581		135	553	96	1.4:1	
2000	600		180	568	156	1.2:1	
2001	586		111	555	116	1.0:1	
2002	596		113	561	121	0.9:1	
2003	576		270	548	246	1.1:1	
2004	574		93	553	137	0.7:1	
1986–2003 Average			580	184	553	184	1.0:1

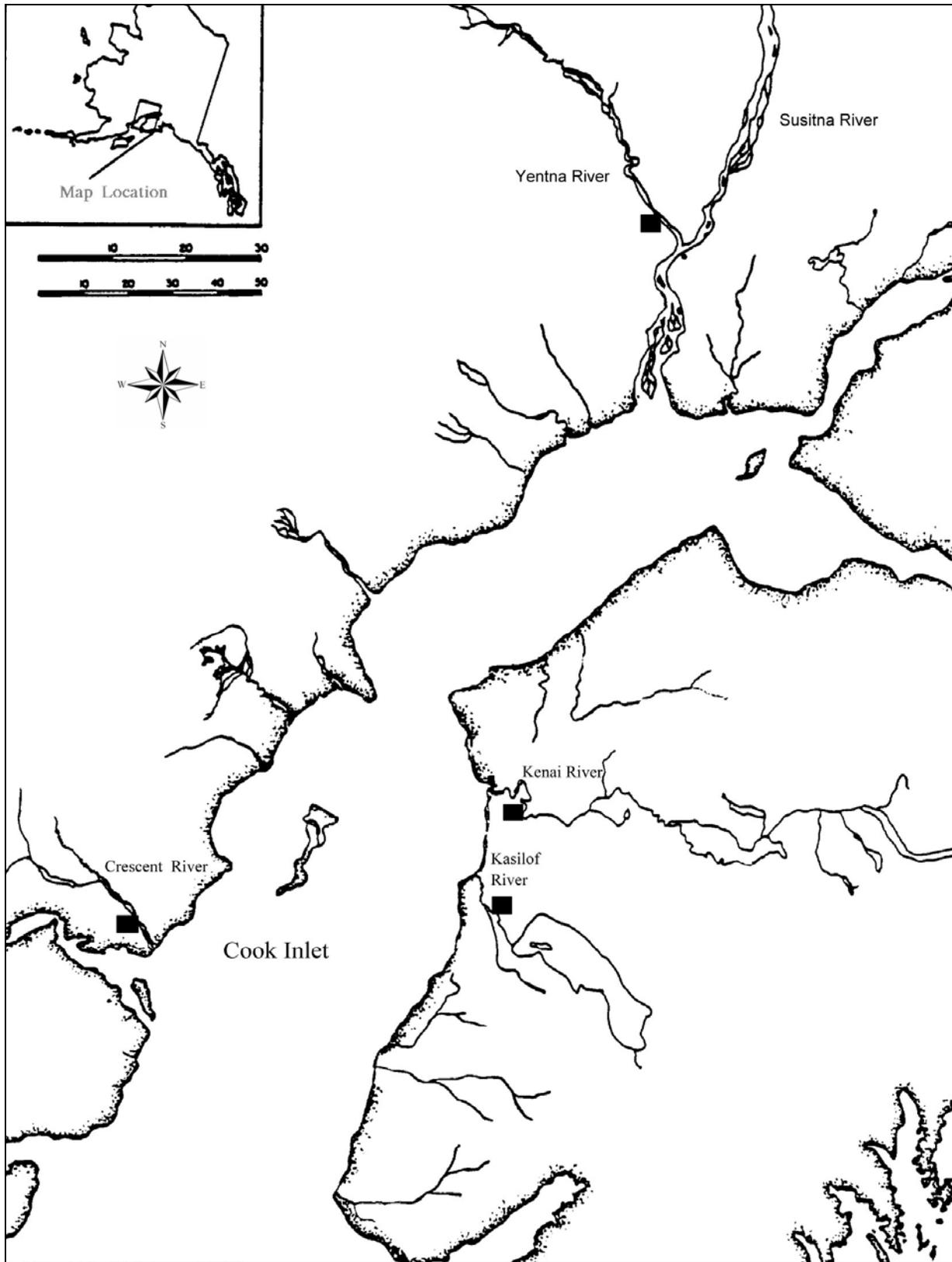
-continued-

**Table 27.**—Page 2 of 2.

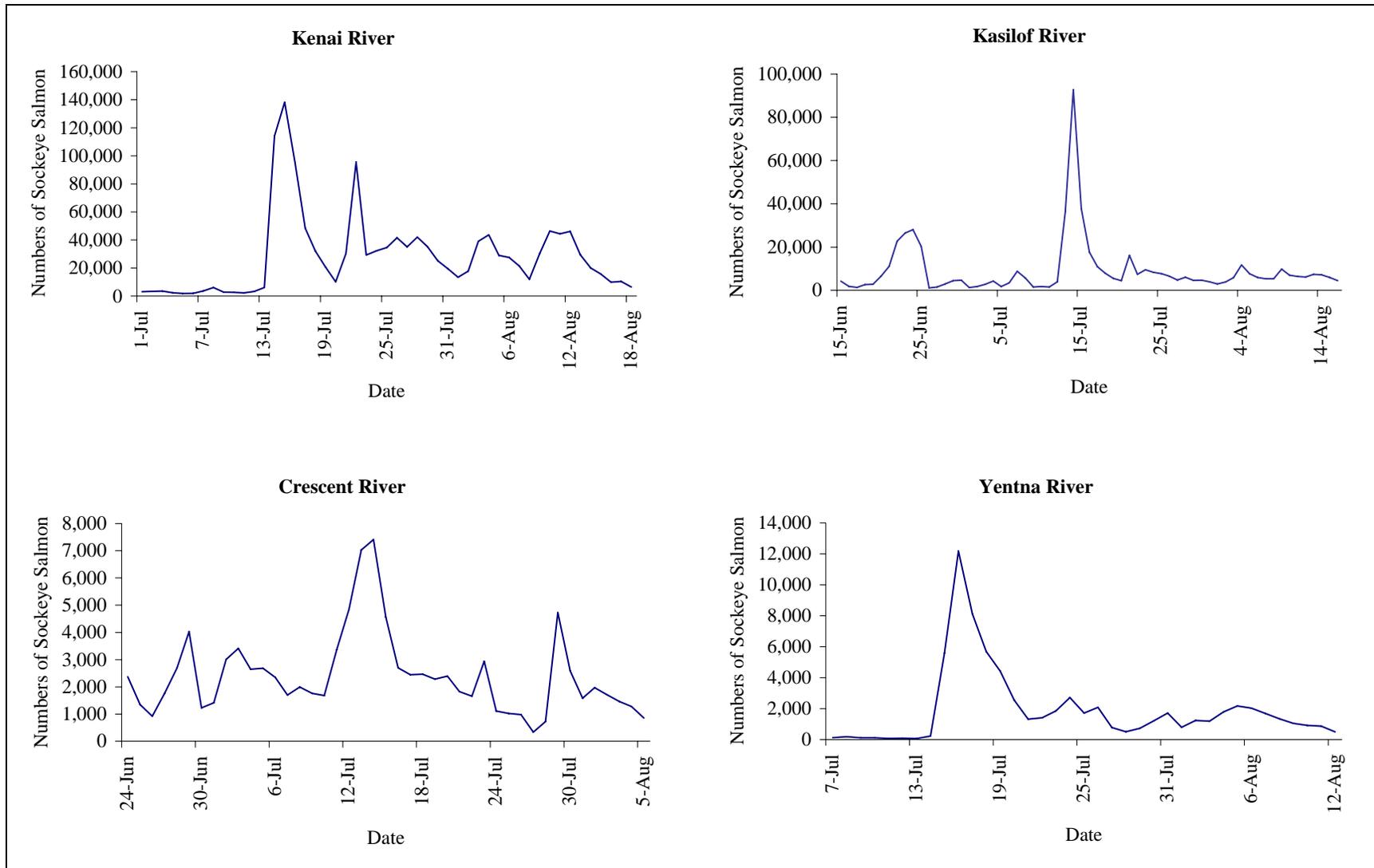
Year	Age Class	Male		Female		Ratio Male-Female
		Average Length (mm)	Sample Size	Average Length (mm)	Sample Size	
1992	2.2	451	181	471	53	3.4:1
1993		476	93	487	69	1.3:1
2003		472	23	486	26	0.9:1
2004		474	24	486	14	1.7:1
1992–2003 Average		466	99	481	49	2.0:1
1986	2.3	588	25	555	44	0.6:1
1987		583	62	566	52	1.2:1
1988		585	92	554	87	1.1:1
1990		574	73	542	96	0.8:1
1991		561	78	536	86	0.9:1
1992		564	123	538	126	1.0:1
1993		562	74	544	128	0.6:1
1994		600	56	561	56	1.0:1
1995		578	25	544	34	0.7:1
1996		585	31	558	34	0.9:1
1998		558	82	534	76	1.1:1
2000		597	55	563	55	1.0:1
2001		575	34	552	50	0.7:1
2002		589	21	551	26	0.8:1
2003		562	50	543	34	1.5:1
2004		579	41	551	59	0.7:1
1986–2003 Average		577	41	550	44	0.9:1
2004 Summary (all ages)		535	222	542	238	0.9:1

*Note:* Length measured from mideye to tail fork.

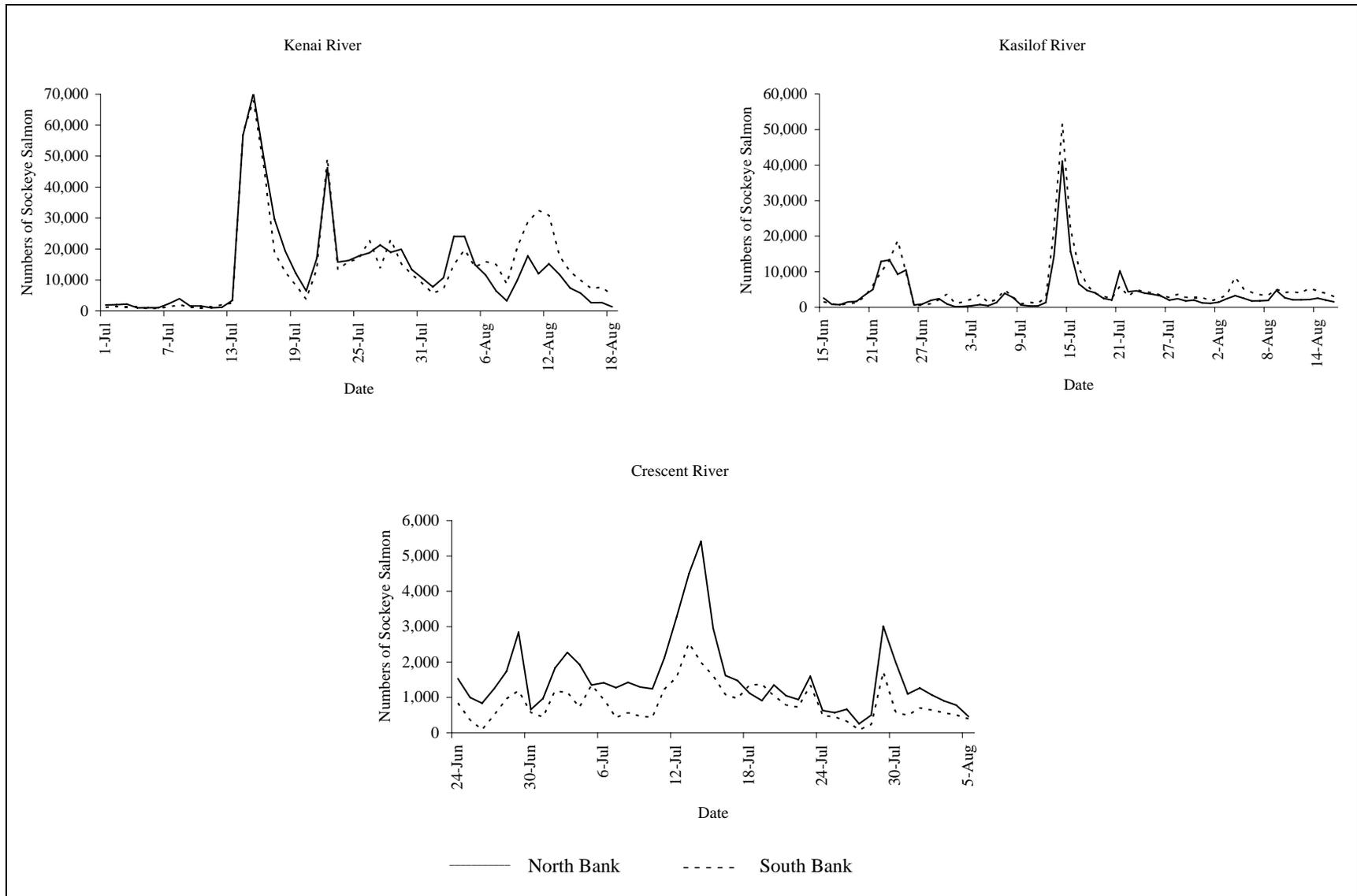
*Source:* 1986–1997 source D. Waltemyer, Commercial Fisheries Biologist, ADF&G, Soldotna; personal communication.



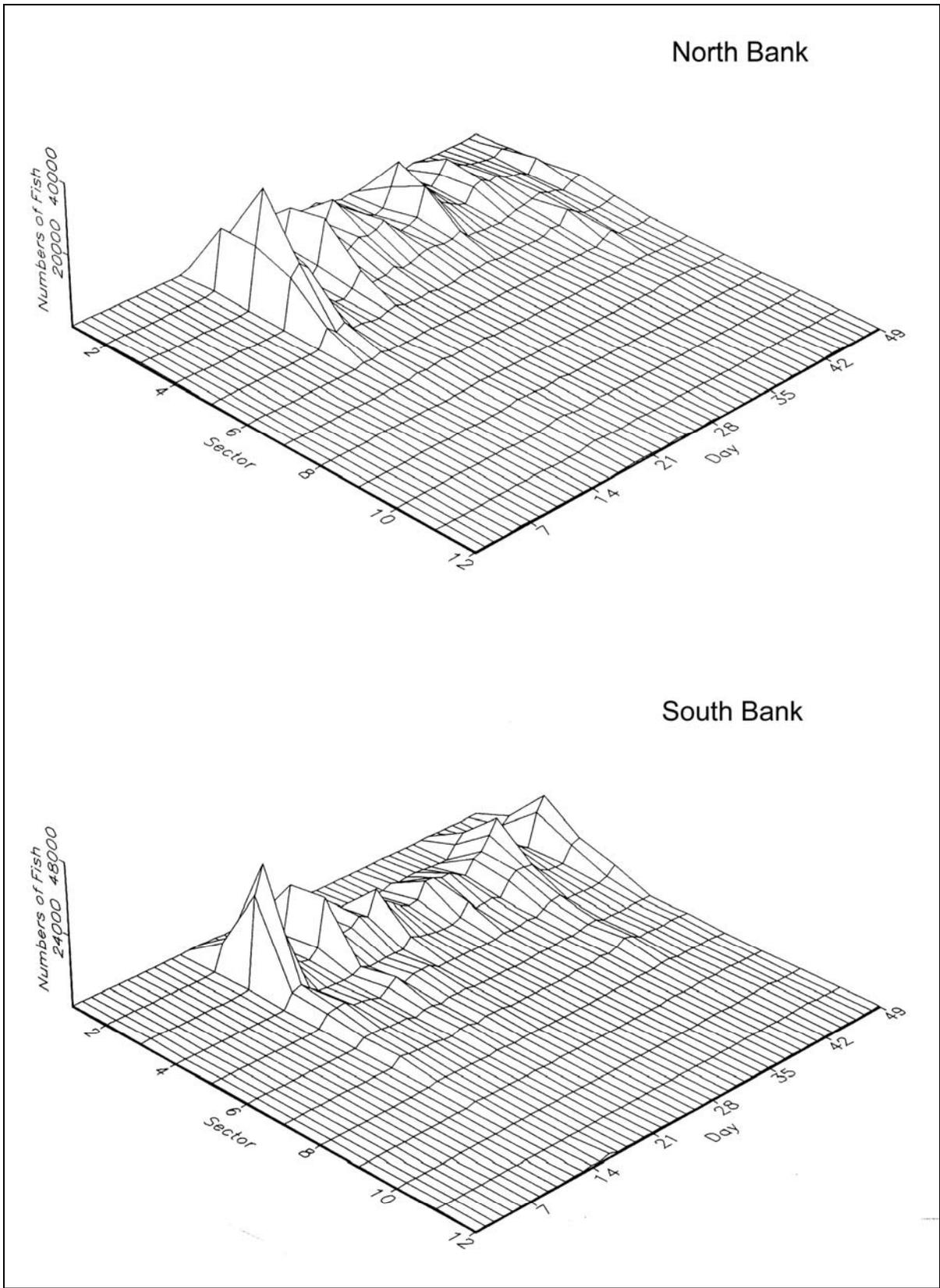
**Figure 1.**—Upper Cook Inlet, Alaska, and sites where salmon escapement was monitored with side-scanning sonar.



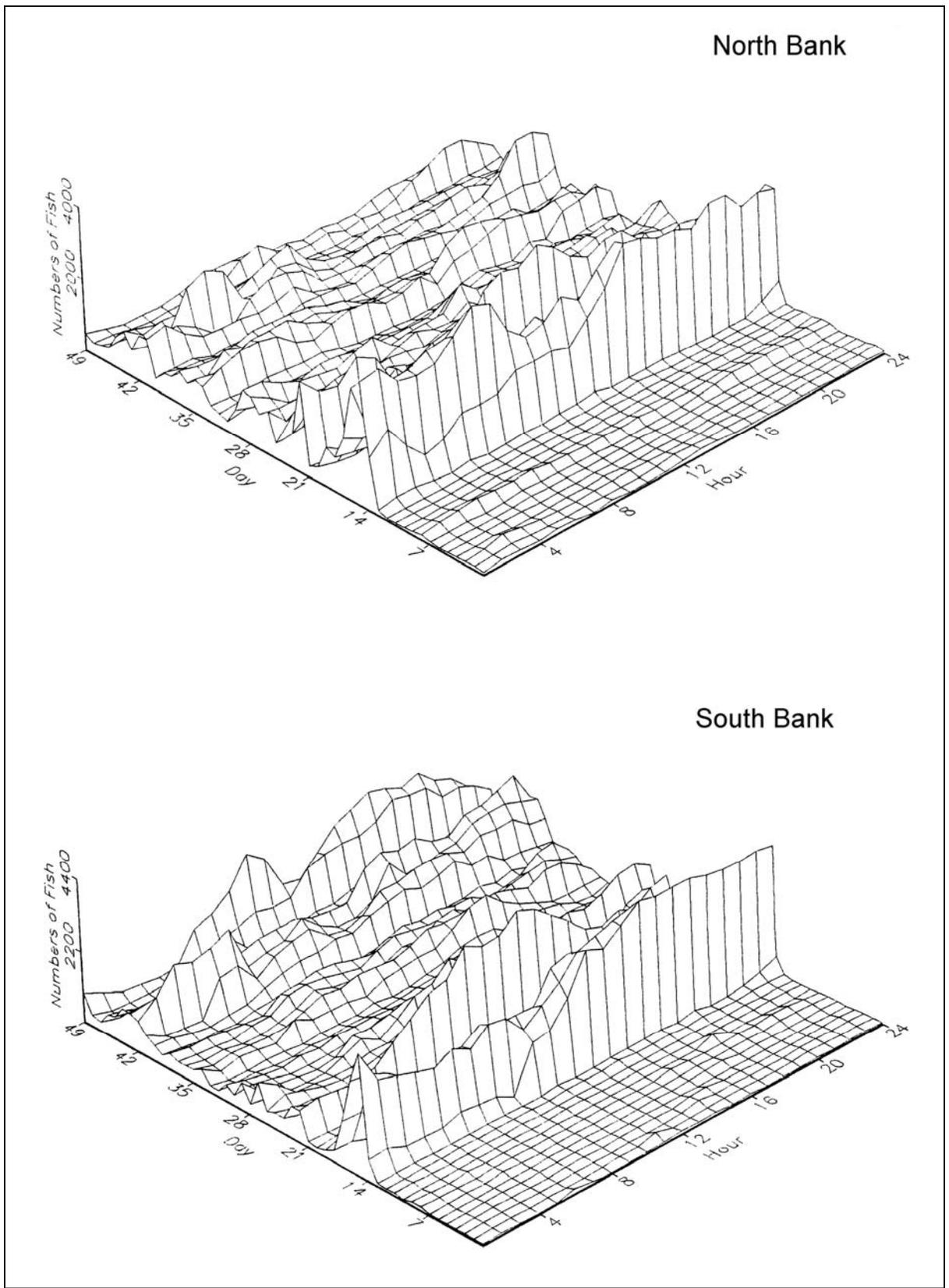
**Figure 2.**—Daily escapement of sockeye salmon into the Kenai, Kasilof, Crescent and Yentna rivers, 2004.



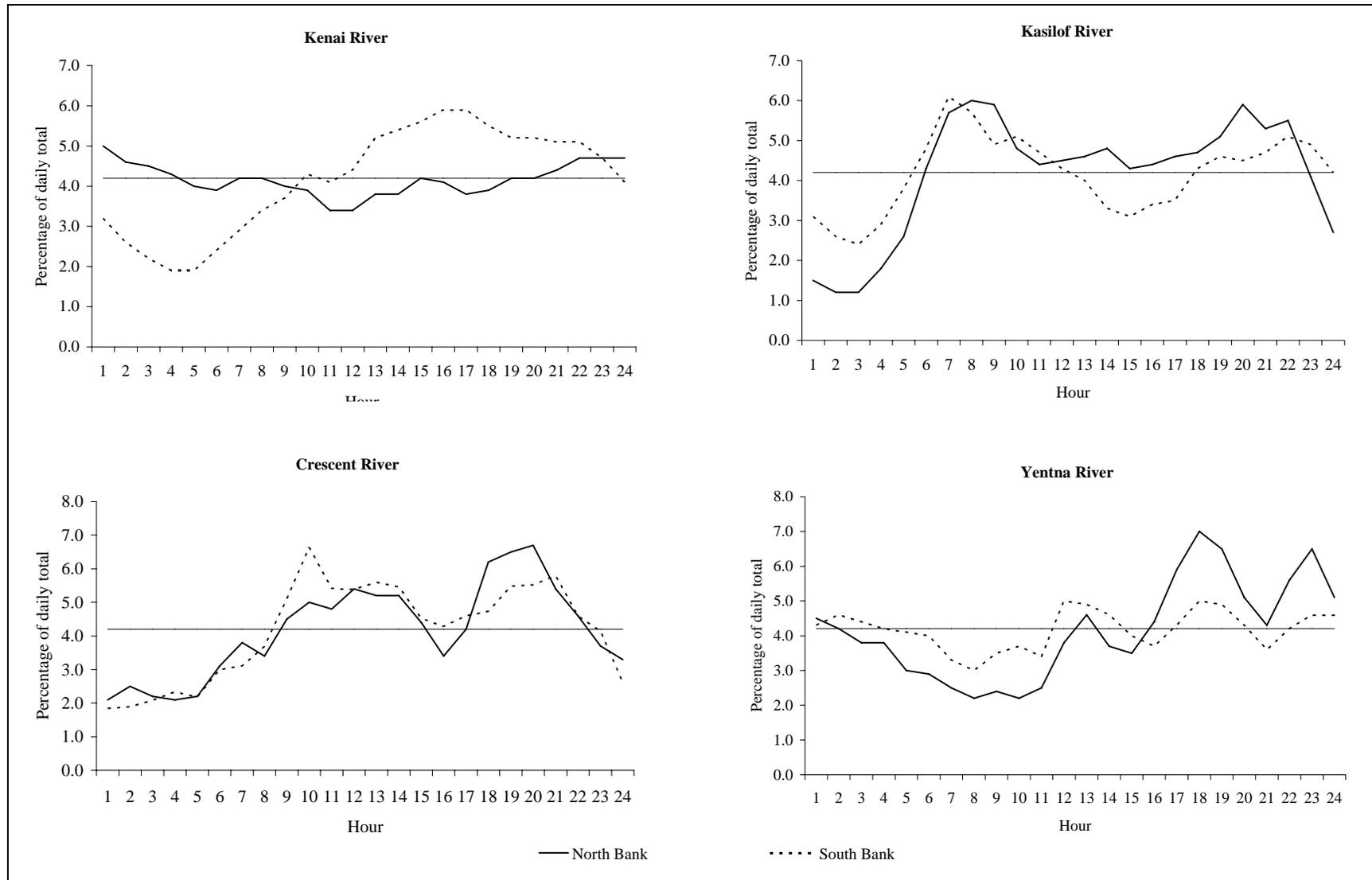
**Figure 3.**—Daily passage rate of sockeye salmon by bank into the Kenai, Kasilof, and Crescent rivers, 2004.



**Figure 4.**—Distribution of salmon sonar counts by sector in the Kenai River, 2004.

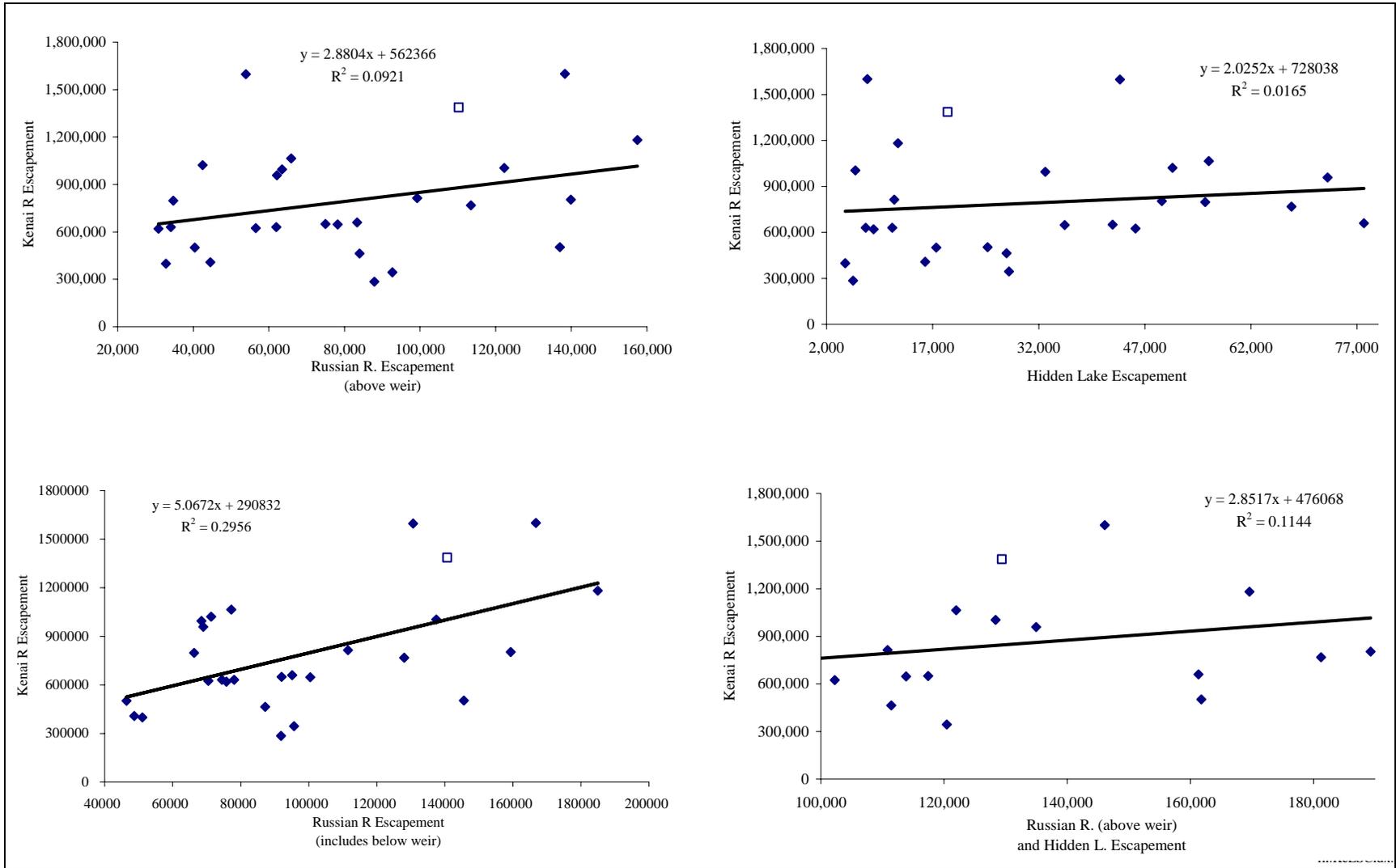


**Figure 5.**—Distribution of salmon sonar counts by hour in the Kenai River, 2004.



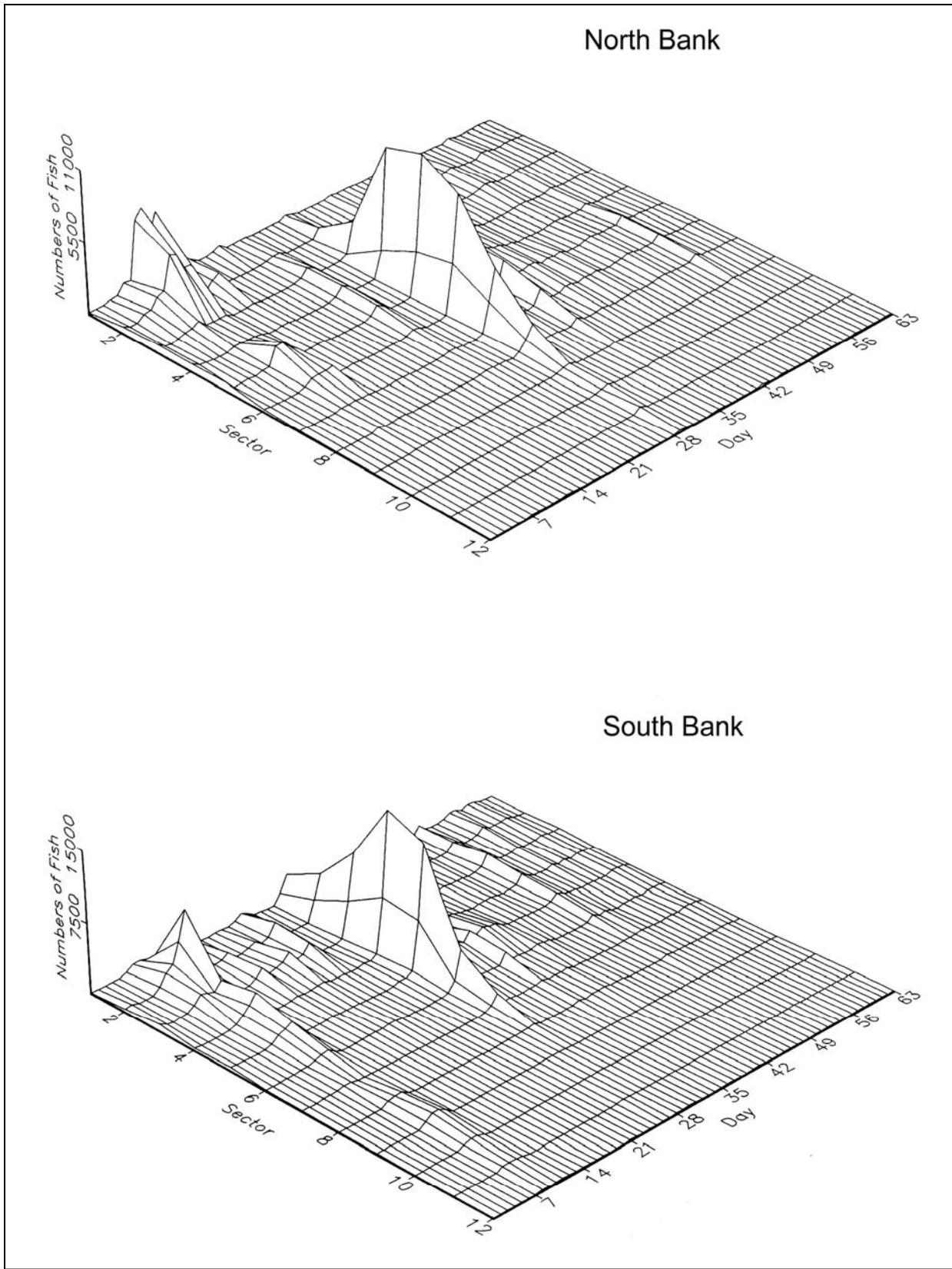
Note: Straight, dashed line represents a (hypothetical) constant passage rate over a 24-hour period.

**Figure 6.**—Mean hourly passage rates of salmon migrating past the Kenai, Kasilof, Crescent and Yentna River sonar counters, 2004.

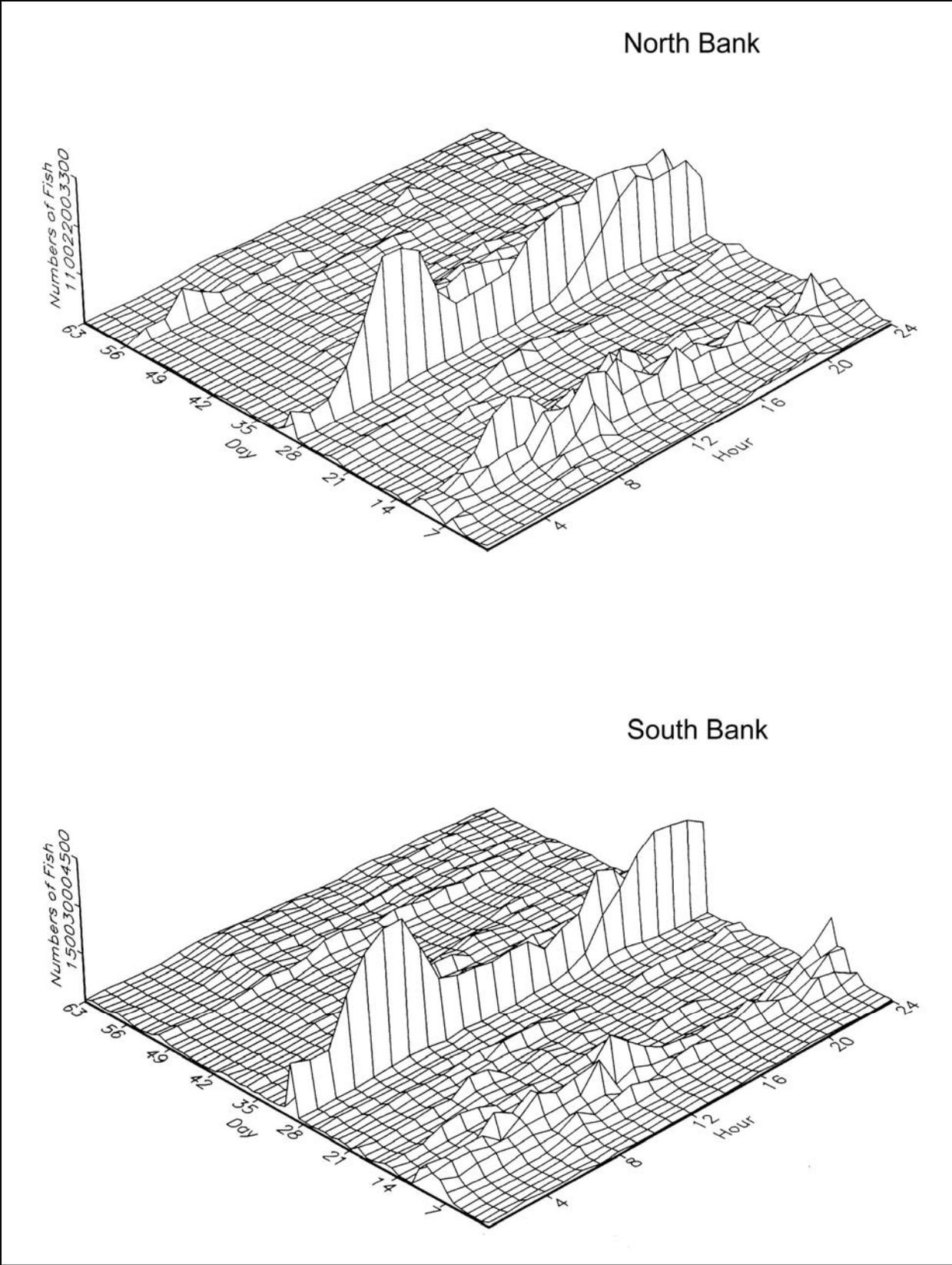


Note: Hollow square represents 2004.

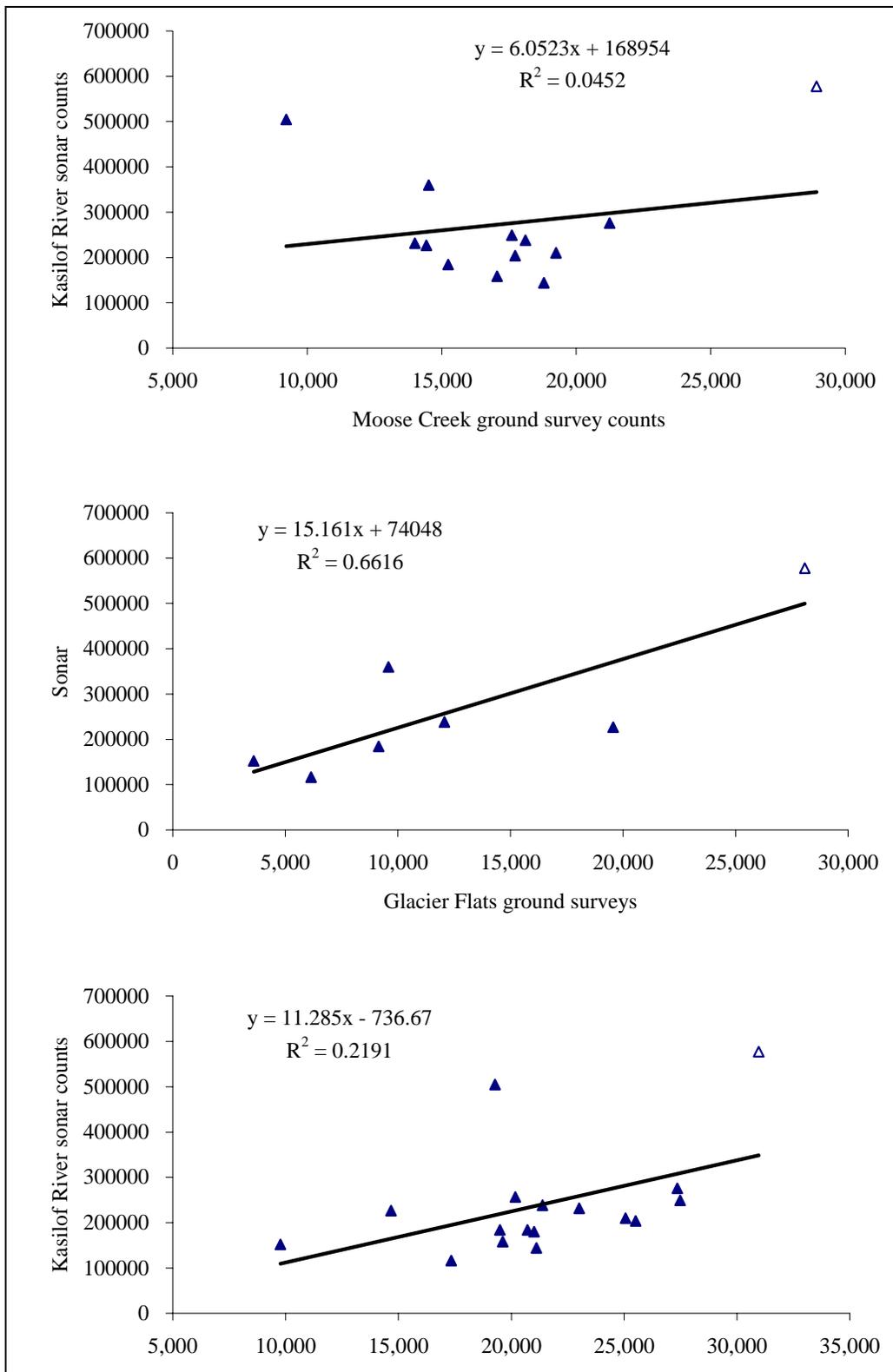
**Figure 7.**—Linear relationships between Kenai River escapement and Russian River and Hidden Creek escapements, 1978–2004.



**Figure 8.**—Distribution of salmon sonar counts by sector in the Kasilof River, 2004.

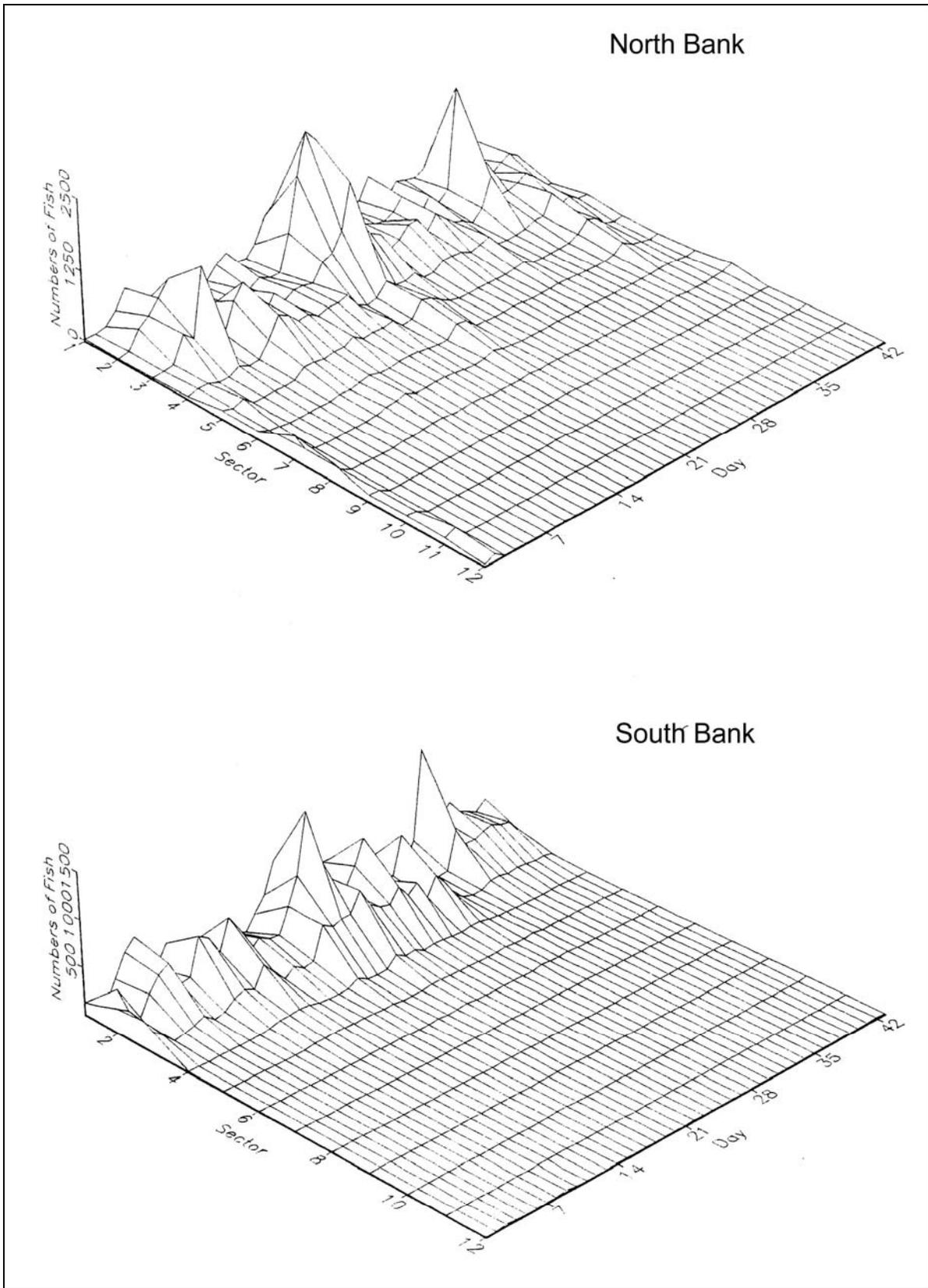


**Figure 9.**—Distribution of salmon sonar counts by hour in the Kasilof River, 2004.

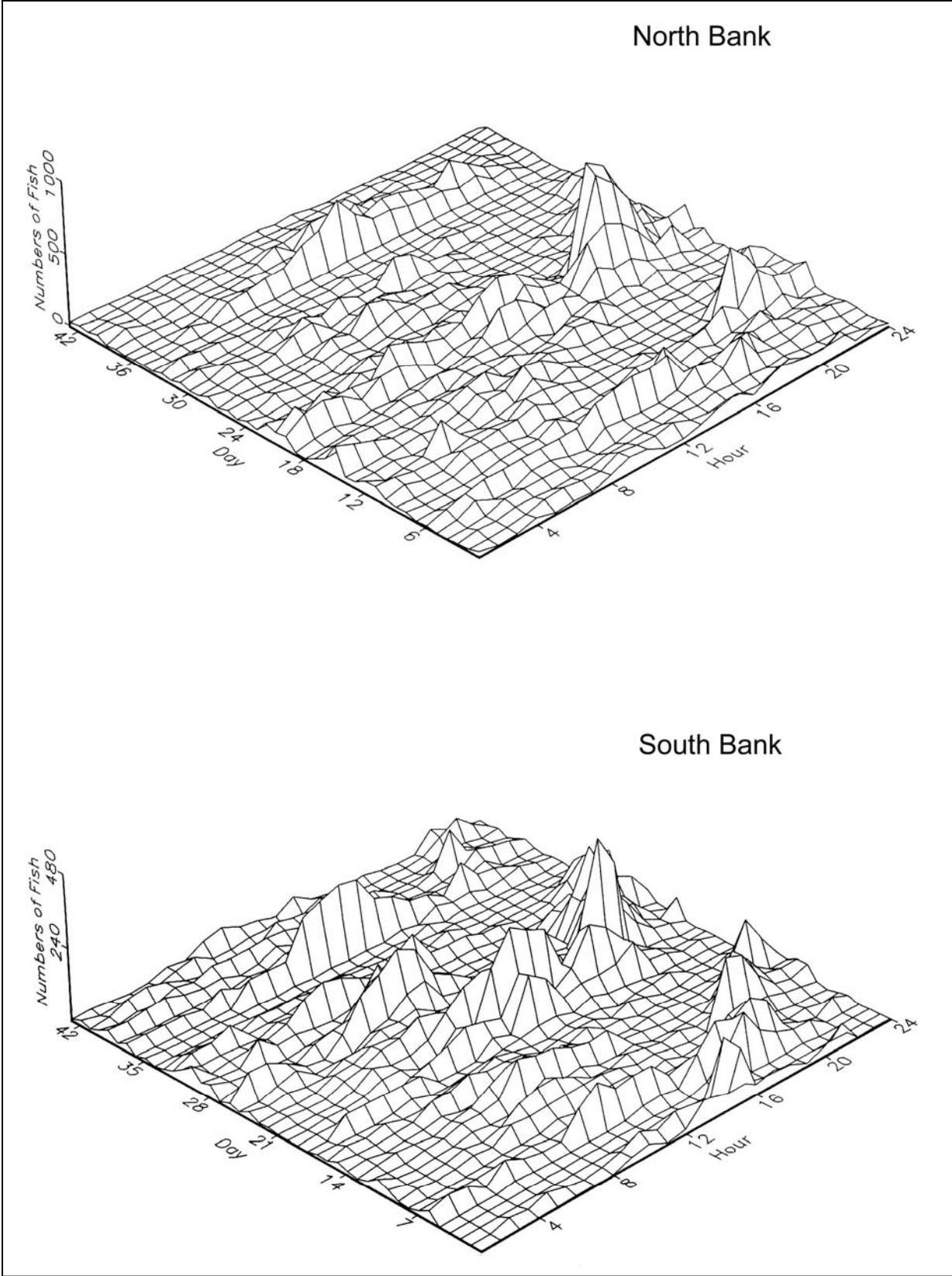


*Note:* The Moose and Glacier creeks counts are combined in the bottom graph. The blank triangle represents counts from 2004.

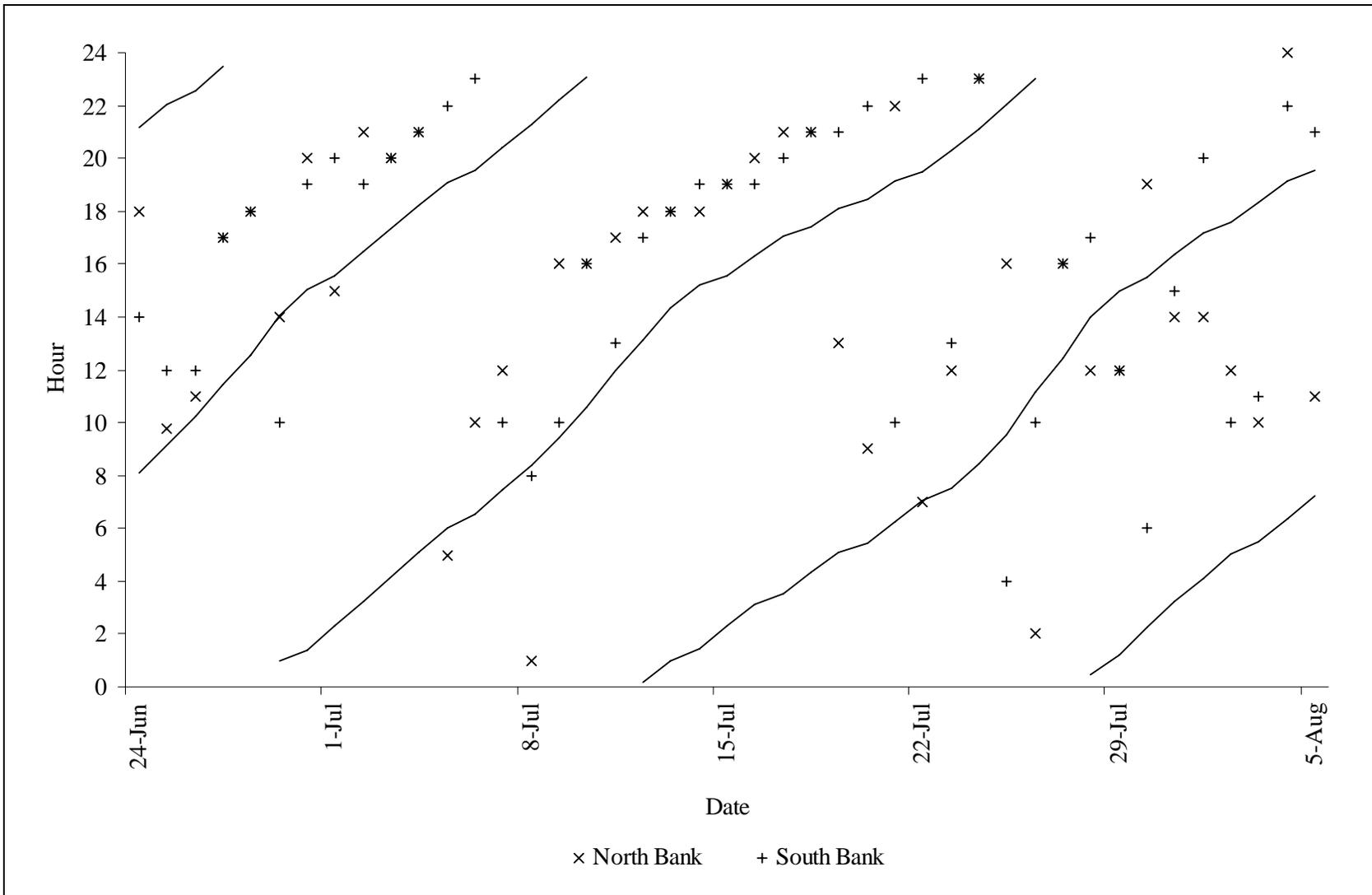
**Figure 10.**—Regression analysis comparing Kasilof River sonar counts to Moose Creek (top), and Glacier Flats ground surveys counts (middle).



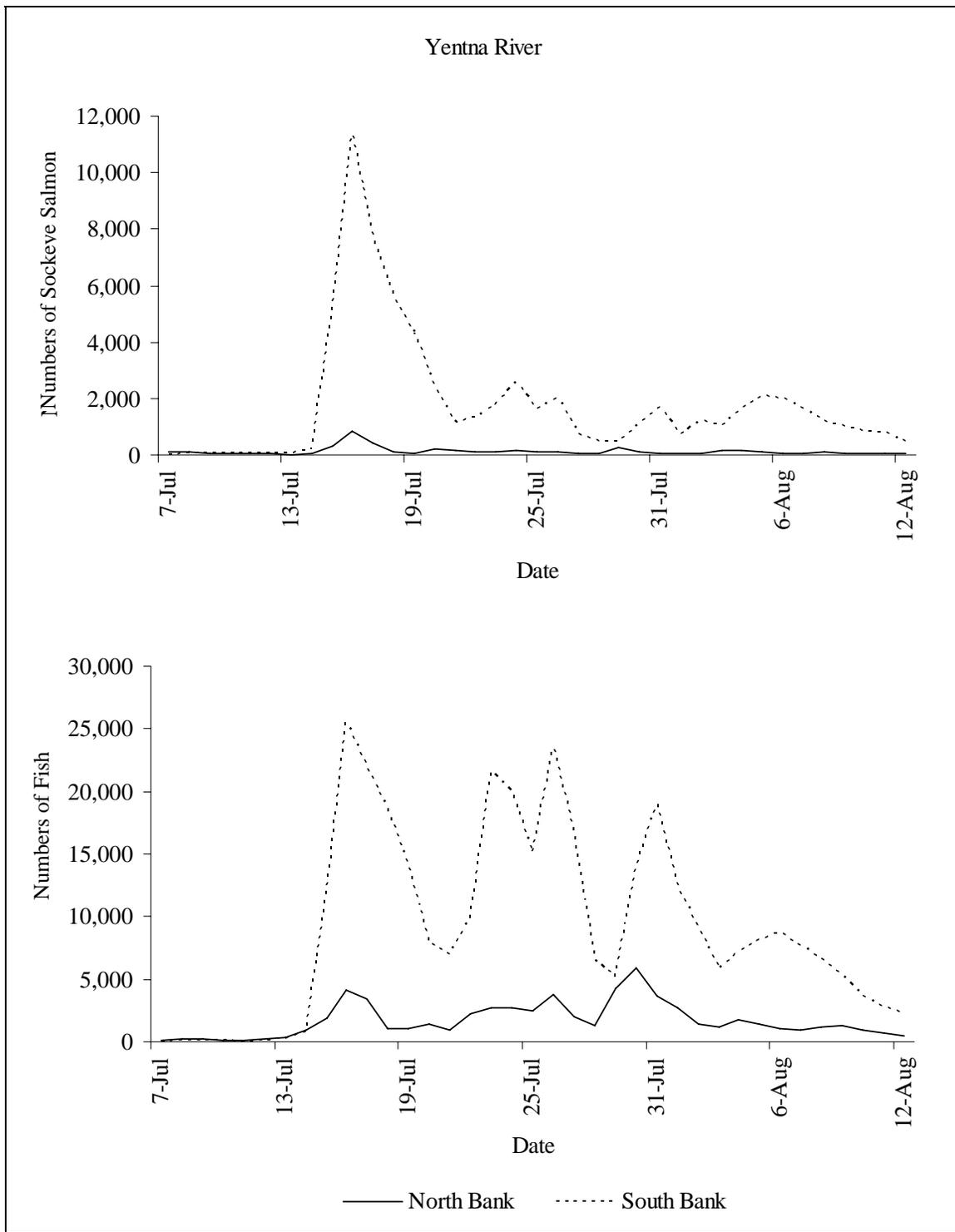
**Figure 11.**—Distribution of salmon sonar counts by sector in the Crescent River, 2004.



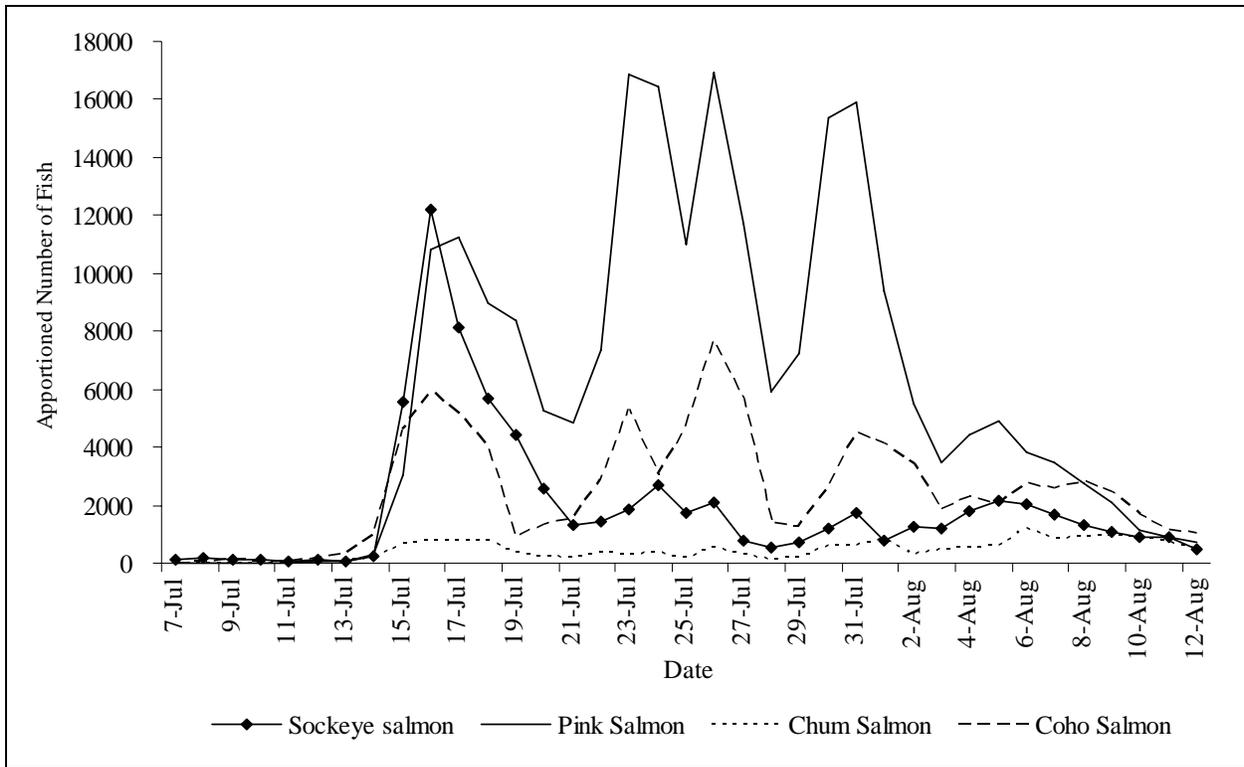
**Figure 12.**—Distribution of salmon sonar counts by hour in the Crescent River, 2004.



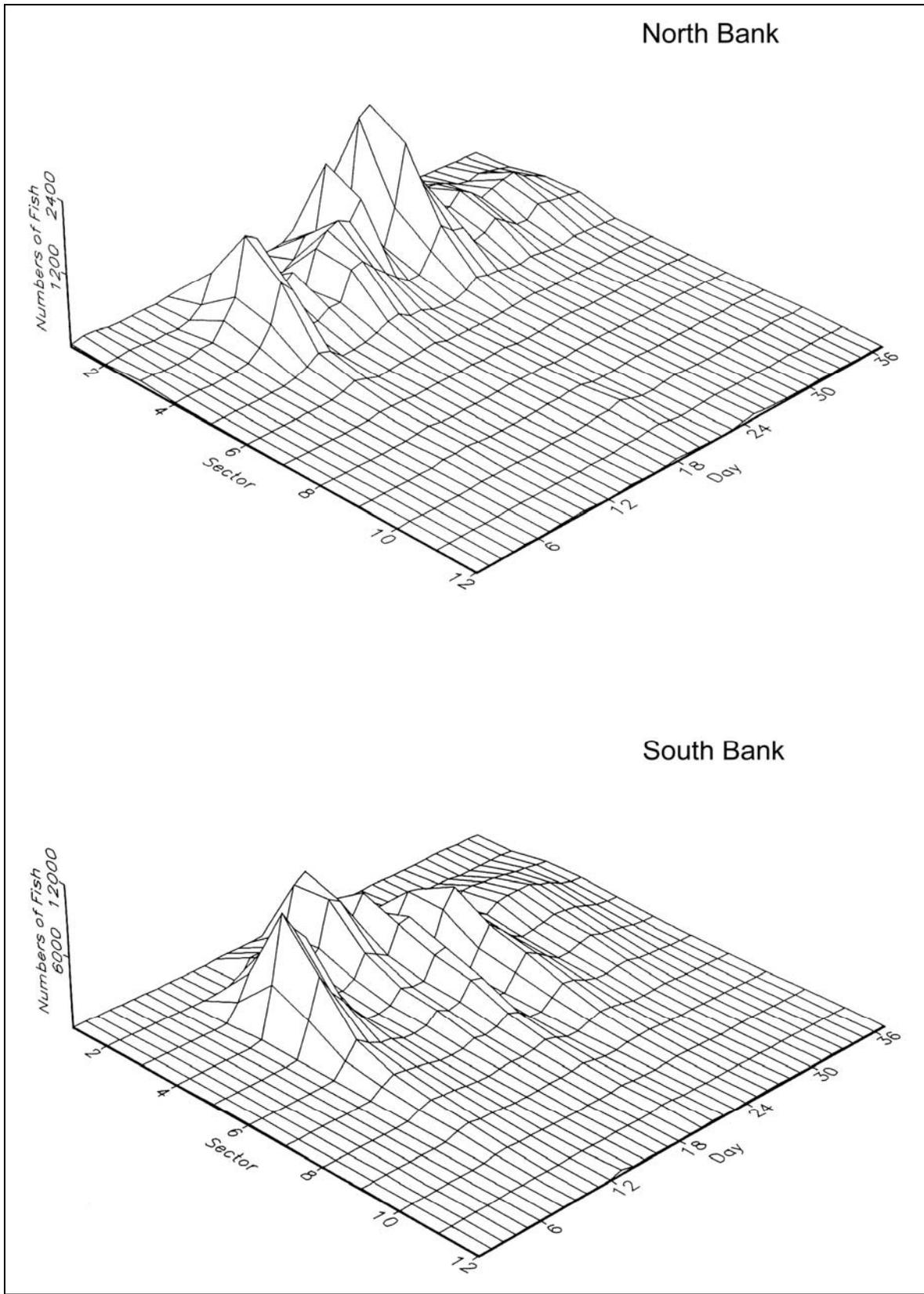
**Figure 13.**—Peak daily high tides for Tuxedni Bay (solid lines) in relation to peak daily sonar counts for the Crescent River, 2004.



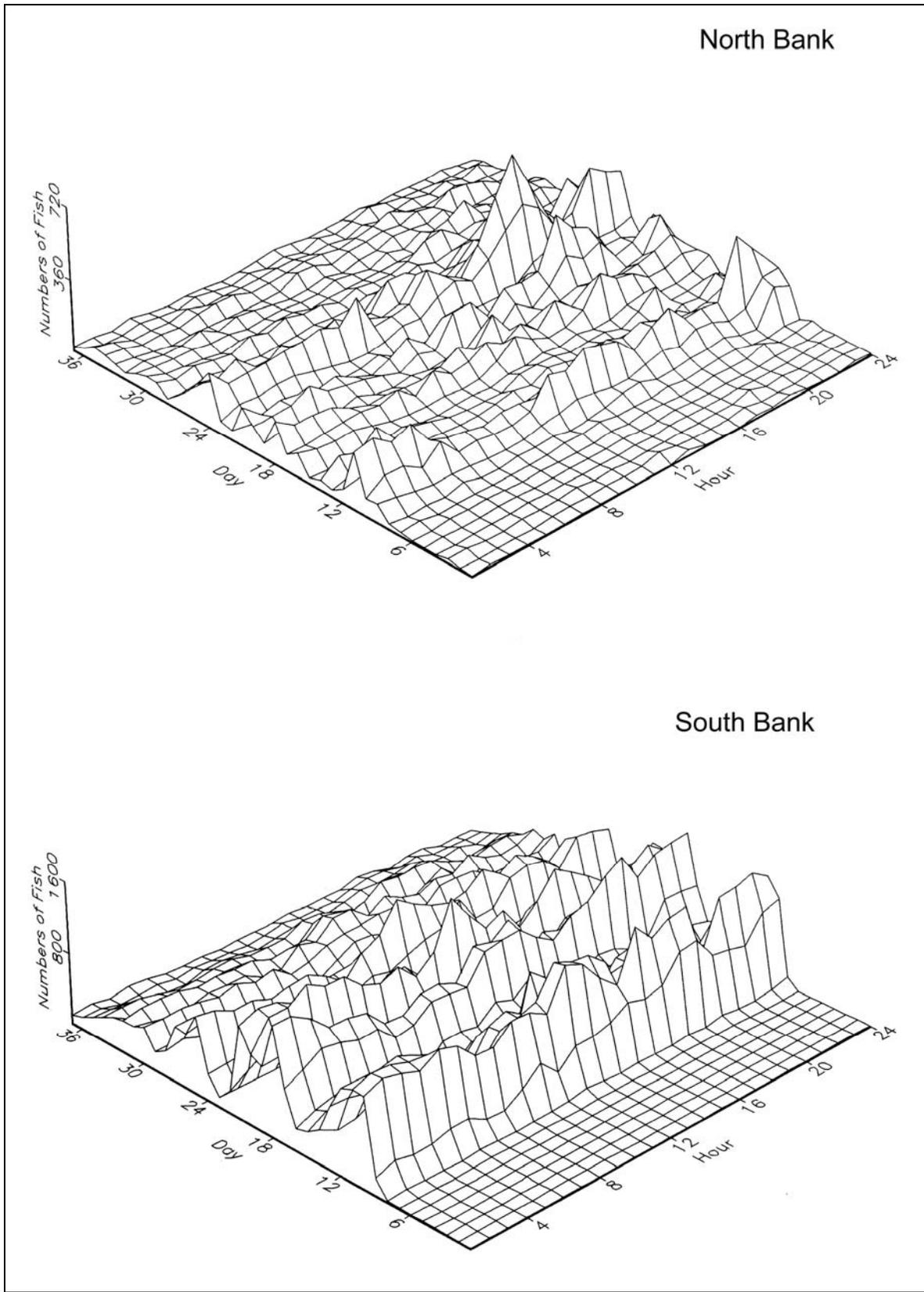
**Figure 14.**—Daily passage rate of sockeye salmon (top) and all salmon (bottom) migrating up the Yentna River (by bank) 7 July through 12 August, 2004.



**Figure 15.**—Migratory timing of sockeye, pink, chum and coho salmon in the Yentna River, 2004.



**Figure 16.**—Distribution of salmon sonar counts by sector in the Yentna River, 2004.



**Figure 17.**—Distribution of salmon sonar counts by hour in the Yentna River, 2004.

## **APPENDIX A. KENAI RIVER**

**Appendix A1.**—Estimated salmon escapement adjacent to the north bank of the Kenai River, 1 July through 18 August 2004.

Date	Sockeye		Pink		Coho		Chinook	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
1-Jul	1,979	1,979	0	0	0	0	0	0
2-Jul	2,041	4,020	0	0	0	0	0	0
3-Jul	2,232	6,252	0	0	0	0	0	0
4-Jul	988	7,240	0	0	0	0	0	0
5-Jul	1,061	8,301	0	0	0	0	0	0
6-Jul	1,084	9,385	0	0	0	0	0	0
7-Jul	2,394	11,779	0	0	0	0	0	0
8-Jul	3,984	15,763	0	0	0	0	0	0
9-Jul	1,638	17,401	0	0	0	0	0	0
10-Jul	1,619	19,020	0	0	0	0	0	0
11-Jul	1,036	20,056	0	0	0	0	0	0
12-Jul	1,215	21,271	0	0	0	0	0	0
13-Jul	3,400	24,671	0	0	0	0	0	0
14-Jul	56,710	81,381	0	0	0	0	0	0
15-Jul	70,227	151,608	0	0	0	0	0	0
16-Jul	48,897	200,505	0	0	0	0	0	0
17-Jul	29,619	230,124	0	0	0	0	0	0
18-Jul	19,434	249,558	0	0	0	0	0	0
19-Jul	12,266	261,824	0	0	0	0	0	0
20-Jul	6,455	268,279	0	0	0	0	0	0
21-Jul	16,956	285,235	0	0	0	0	0	0
22-Jul	46,212	331,447	0	0	0	0	0	0
23-Jul	15,828	347,275	0	0	0	0	0	0
24-Jul	16,327	363,602	0	0	0	0	0	0
25-Jul	17,740	381,342	0	0	0	0	0	0
26-Jul	18,788	400,130	0	0	0	0	0	0
27-Jul	21,329	421,459	0	0	0	0	0	0
28-Jul	18,956	440,415	0	0	0	0	0	0
29-Jul	19,957	460,372	0	0	0	0	0	0
30-Jul	13,416	473,788	0	0	0	0	0	0
31-Jul	10,597	484,385	0	0	0	0	0	0
1-Aug	7,796	492,181	0	0	0	0	0	0
2-Aug	10,732	502,913	0	0	0	0	0	0
3-Aug	24,034	526,947	0	0	0	0	0	0
4-Aug	24,059	551,006	0	0	0	0	0	0
5-Aug	14,889	565,895	0	0	0	0	0	0
6-Aug	11,595	577,490	0	0	0	0	0	0
7-Aug	6,496	583,986	649	649	0	0	108	108
8-Aug	3,305	587,291	629	1,278	197	197	0	108
9-Aug	9,841	597,132	958	2,236	192	389	0	108
10-Aug	17,740	614,872	1,604	3,840	201	590	100	208
11-Aug	12,028	626,900	1,804	5,644	1,203	1,793	0	208
12-Aug	15,259	642,159	3,366	9,010	1,122	2,915	112	320
13-Aug	11,737	653,896	3,673	12,683	1,597	4,512	80	400
14-Aug	7,433	661,329	2,205	14,888	1,389	5,901	82	482
15-Aug	5,805	667,134	1,505	16,393	860	6,761	0	482
16-Aug	2,646	669,780	1,323	17,716	591	7,352	28	510
17-Aug	2,759	672,539	8,071	25,787	886	8,238	82	592
18-Aug	1,326	673,865	7,071	32,858	2,652	10,890	37	629

**Appendix A2.**—Estimated salmon escapement adjacent to the south bank of the Kenai River, 1 July through 18 August, 2004.

Date	Sockeye		Pink		Coho		Chinook	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
1-Jul	1,185	1,185	0	0	0	0	0	0
2-Jul	1,386	2,571	0	0	0	0	0	0
3-Jul	1,328	3,899	0	0	0	0	0	0
4-Jul	1,370	5,269	0	0	0	0	0	0
5-Jul	764	6,033	0	0	0	0	0	0
6-Jul	961	6,994	0	0	0	0	0	0
7-Jul	1,354	8,348	0	0	0	0	0	0
8-Jul	2,029	10,377	0	0	0	0	0	0
9-Jul	1,197	11,574	0	0	0	0	0	0
10-Jul	1,069	12,643	0	0	0	0	0	0
11-Jul	1,188	13,831	0	0	0	0	0	0
12-Jul	2,026	15,857	0	0	0	0	0	0
13-Jul	2,616	18,473	0	0	0	0	0	0
14-Jul	57,396	75,869	0	0	0	0	0	0
15-Jul	67,985	143,854	0	0	0	0	0	0
16-Jul	46,023	189,877	0	0	0	0	0	0
17-Jul	18,759	208,636	0	0	0	0	0	0
18-Jul	12,660	221,296	0	0	0	0	0	0
19-Jul	8,391	229,687	0	0	0	0	0	0
20-Jul	3,734	233,421	0	0	0	0	0	0
21-Jul	13,528	246,949	0	0	0	0	0	0
22-Jul	49,258	296,207	0	0	0	0	0	0
23-Jul	13,418	309,625	0	0	0	0	0	0
24-Jul	15,860	325,485	0	0	0	0	0	0
25-Jul	16,979	342,464	0	0	0	0	0	0
26-Jul	22,803	365,267	0	0	0	0	0	0
27-Jul	13,787	379,054	0	0	0	0	0	0
28-Jul	23,054	402,108	0	0	0	0	0	0
29-Jul	15,255	417,363	0	0	0	0	0	0
30-Jul	11,805	429,168	0	0	0	0	0	0
31-Jul	8,901	438,069	0	0	0	0	0	0
1-Aug	5,687	443,756	0	0	0	0	0	0
2-Aug	7,106	450,862	0	0	0	0	0	0
3-Aug	14,975	465,837	0	0	0	0	0	0
4-Aug	19,725	485,562	0	0	0	0	0	0
5-Aug	14,127	499,689	0	0	0	0	0	0
6-Aug	15,930	515,619	0	0	0	0	0	0
7-Aug	15,047	530,666	1,504	1,504	0	0	251	251
8-Aug	8,771	539,437	1,671	3,175	522	522	0	251
9-Aug	20,420	559,857	1,989	5,164	398	920	0	251
10-Aug	28,667	588,524	2,591	7,755	324	1,244	162	413
11-Aug	32,447	620,971	4,867	12,622	3,245	4,489	0	413
12-Aug	30,844	651,815	6,804	19,426	2,268	6,756	227	640
13-Aug	17,654	669,469	5,524	24,950	2,402	9,158	120	760
14-Aug	12,683	682,152	3,763	28,713	2,369	11,528	139	899
15-Aug	9,881	692,033	2,562	31,275	1,464	12,991	0	899
16-Aug	7,272	699,305	3,636	34,911	1,625	14,616	77	977
17-Aug	7,695	707,000	22,509	57,420	2,469	17,085	230	1,206
18-Aug	5,116	712,116	27,283	84,703	10,231	27,316	142	1,348

**Appendix A3.—Kenai River north bank sonar counts by hour, 1 July through 18 August 2004.**

Date	Counts by Hour																								Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Total
07/01	76	145	114	79	138	92	34	100	43	45	45	115	177	133	97	80	67	64	67	58	37	42	75	56	1,979	1,979
07/02	88	123	158	101	62	54	63	41	37	47	71	155	130	83	116	96	55	55	77	79	75	83	71	121	2,041	4,020
07/03	96	145	279	179	120	57	61	91	86	112	104	81	75	77	101	58	73	64	56	75	47	64	56	75	2,232	6,252
07/04	86	61	88	15	20	19	36	35	89	38	32	44	40	37	41	36	38	30	17	26	29	30	40	61	988	7,240
07/05	70	64	76	58	58	43	42	22	41	32	45	36	54	29	49	70	80	40	18	21	30	29	26	28	1,061	8,301
07/06	33	37	40	27	44	84	51	53	31	51	65	72	44	26	41	49	61	54	44	51	48	19	36	23	1,084	9,385
07/07	68	68	72	34	53	105	77	68	45	60	12	32	28	25	44	100	142	235	224	239	238	174	142	109	2,394	11,779
07/08	133	202	249	303	252	247	290	194	178	139	147	119	149	108	108	106	99	147	114	150	152	127	139	132	3,984	15,763
07/09	85	111	128	105	104	115	97	60	72	70	75	61	63	89	45	70	69	45	22	19	30	13	20	70	1,638	17,401
07/10	62	39	59	27	45	104	50	97	61	59	46	61	51	63	44	73	102	91	83	81	68	67	93	93	1,619	19,020
07/11	49	45	30	42	63	56	45	66	61	35	37	44	76	55	51	30	12	21	19	48	35	24	47	45	1,036	20,056
07/12	48	39	41	29	41	74	46	47	61	66	64	44	68	64	126	60	12	31	8	34	44	33	64	71	1,215	21,271
07/13	112	217	215	132	76	165	72	78	132	100	129	139	237	95	107	104	116	74	73	38	53	41	270	625	3,400	24,671
07/14	1,459	1,985	1,261	723	906	1,354	1,323	1,349	1,739	1,743	1,764	1,604	2,180	2,751	3,773	3,682	3,441	3,430	3,217	3,704	3,708	3,117	3,310	3,187	56,710	81,381
07/15	3,380	3,478	2,868	2,764	2,836	3,327	3,888	3,705	2,732	2,295	2,436	2,896	2,544	3,166	3,696	2,231	1,656	3,148	2,754	2,651	2,741	2,989	2,842	3,204	70,227	151,608
07/16	3,075	1,545	2,773	2,783	3,046	3,159	3,520	3,254	2,378	2,151	2,480	1,998	1,784	1,359	1,873	1,781	1,658	993	1,281	1,114	1,146	1,169	1,259	1,318	48,897	200,505
07/17	1,592	1,333	1,730	1,729	1,704	1,387	2,468	2,334	1,372	1,243	960	1,131	939	726	655	797	827	993	1,012	820	851	1,016	999	1,001	29,619	230,124
07/18	941	824	743	580	366	258	422	538	589	522	491	659	691	929	956	1,244	1,217	1,094	1,178	966	1,158	1,195	852	1,021	19,434	249,558
07/19	1,089	759	804	616	416	634	570	478	389	454	421	535	432	433	407	429	379	437	563	475	382	338	392	434	12,266	261,824
07/20	409	277	207	328	307	218	339	355	236	217	195	216	193	246	317	276	274	401	311	217	218	213	224	261	6,455	268,279
07/21	287	195	205	151	175	249	248	319	178	231	160	531	833	715	598	1,149	1,069	909	1,095	1,135	1,454	1,837	1,720	1,513	16,956	285,235
07/22	2,506	1,959	1,863	2,386	2,112	1,176	1,443	1,166	1,147	1,525	2,469	2,745	2,632	3,019	2,717	2,222	1,962	2,221	2,231	1,766	1,550	1,343	1,202	850	46,212	331,447
07/23	970	1,369	1,054	891	509	492	512	1,006	1,052	550	388	559	543	433	606	397	380	311	455	567	711	622	750	701	15,828	347,275
07/24	675	752	635	467	323	624	1,057	491	599	795	777	646	752	829	649	535	512	665	634	924	831	960	700	495	16,327	363,602
07/25	420	1,052	810	680	471	553	965	759	439	433	536	878	1,366	1,123	1,215	707	460	331	411	526	617	1,100	946	942	17,740	381,342

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Appendix A3.—Page 2 of 2.

Date	Counts by Hour																								Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Total
07/26	1,169	639	842	825	717	581	322	430	478	773	899	751	650	1,144	822	963	620	736	836	869	763	944	913	1,102	18,788	400,130
07/27	952	875	868	668	880	901	595	730	645	536	705	811	682	777	996	1,164	1,229	1,033	992	1,198	1,259	653	818	1,362	21,329	421,459
07/28	1,327	1,033	641	601	525	444	406	458	680	832	650	604	929	564	1,021	836	922	955	1,035	1,142	691	743	804	1,113	18,956	440,415
07/29	1,366	1,345	1,055	837	766	676	882	1,076	587	674	722	722	1,324	912	922	862	817	588	733	710	749	498	464	670	19,957	460,372
07/30	701	527	452	498	208	386	385	366	313	364	301	424	906	768	677	751	674	595	833	788	608	747	834	310	13,416	473,788
07/31	254	350	566	508	412	557	533	412	383	360	354	357	552	563	327	570	498	368	460	446	553	384	526	304	10,597	484,385
08/01	342	386	295	208	241	229	242	262	227	258	169	199	241	467	390	572	432	363	344	428	308	413	461	319	7,796	492,181
08/02	445	401	343	434	401	361	385	235	146	127	132	69	90	135	364	509	368	301	625	459	1,029	1,129	1,312	932	10,732	502,913
08/03	837	1,119	1,317	1,331	1,238	802	620	831	989	935	658	710	936	463	892	1,008	1,206	1,386	1,278	1,171	1,256	1,257	958	836	24,034	526,947
08/04	915	809	982	1,253	1,267	1,310	984	759	850	701	615	590	716	657	1,250	1,523	1,447	1,286	1,347	949	979	1,297	639	934	24,059	551,006
08/05	671	598	1,098	925	933	834	850	864	658	549	375	582	635	528	223	332	275	582	951	574	361	544	507	440	14,889	565,895
08/06	897	774	735	877	1,024	1,016	982	939	720	616	298	218	396	277	171	150	90	137	59	85	53	192	366	523	11,595	577,490
08/07	620	563	467	466	449	425	428	529	548	439	207	54	129	140	99	118	124	86	63	57	35	238	386	584	7,254	584,744
08/08	601	456	412	288	251	172	196	155	184	159	99	79	57	60	36	73	48	46	30	95	84	117	198	236	4,132	588,876
08/09	321	341	356	158	231	193	163	284	408	402	357	263	433	627	747	617	528	367	506	673	713	765	653	885	10,991	599,867
08/10	1,295	1,450	950	635	582	622	514	597	767	382	222	158	439	534	575	519	448	512	638	787	1,210	2,025	2,025	1,758	19,644	619,511
08/11	1,271	831	1,068	769	337	303	803	1,102	1,083	878	345	311	274	299	206	320	367	262	265	402	787	852	951	949	15,035	634,546
08/12	751	617	778	1,717	1,994	1,734	679	623	1,096	998	529	333	402	539	545	404	554	619	765	842	681	900	860	899	19,859	654,405
08/13	1,170	805	944	891	710	532	723	968	1,245	1,409	759	450	358	256	409	427	439	497	539	531	480	468	1,127	950	17,087	671,492
08/14	908	841	695	608	425	452	590	676	794	961	695	272	136	114	100	180	172	197	275	243	299	442	483	551	11,109	682,601
08/15	454	543	482	442	403	253	225	383	435	561	382	225	153	81	202	347	358	313	309	360	352	349	306	252	8,170	690,771
08/16	379	245	201	181	166	139	209	219	275	238	198	101	72	56	92	45	51	69	186	210	212	310	324	410	4,588	695,359
08/17	320	311	223	189	234	231	213	318	720	911	524	258	203	328	153	256	208	403	693	979	1,252	1,259	967	645	11,798	707,157
08/18	469	361	234	242	253	349	514	588	596	583	350	359	224	369	268	261	448	593	608	685	793	867	624	447	11,085	718,242
<b>Total</b>	<b>36,244</b>	<b>33,044</b>	<b>32,506</b>	<b>30,780</b>	<b>28,894</b>	<b>28,148</b>	<b>30,162</b>	<b>30,510</b>	<b>28,614</b>	<b>27,659</b>	<b>24,494</b>	<b>24,301</b>	<b>27,018</b>	<b>27,271</b>	<b>29,919</b>	<b>29,189</b>	<b>27,084</b>	<b>28,178</b>	<b>30,334</b>	<b>30,467</b>	<b>31,760</b>	<b>34,038</b>	<b>33,781</b>	<b>33,847</b>	<b>718,242</b>	

**Appendix A4.–Kenai River south bank sonar counts by hour, 1 July through 18 August 2004.**

Date	Counts by Hour																								Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Total
07/01	29	46	25	23	20	150	52	20	28	25	38	93	64	75	41	74	24	45	41	62	52	55	63	40	1,185	1,185
07/02	33	50	45	21	34	24	15	42	45	45	194	28	48	67	74	83	62	48	66	110	76	65	63	48	1,386	2,571
07/03	54	72	73	39	30	26	36	29	8	47	19	21	57	162	64	81	54	45	32	88	92	59	89	51	1,328	3,899
07/04	41	48	71	52	39	22	40	51	36	54	55	69	41	129	151	74	69	33	23	42	36	59	92	43	1,370	5,269
07/05	36	49	78	74	36	50	43	38	31	18	14	33	27	18	16	18	21	21	18	35	26	19	17	28	764	6,033
07/06	22	16	26	34	31	18	41	29	46	19	21	30	42	29	54	80	124	43	62	29	23	38	57	47	961	6,994
07/07	28	22	44	35	85	34	25	23	37	30	42	27	34	39	65	96	65	69	98	71	125	109	103	48	1,354	8,348
07/08	103	81	52	32	56	51	58	61	23	45	65	76	45	39	148	130	94	97	146	112	177	169	118	51	2,029	10,377
07/09	100	79	46	84	45	51	32	27	52	17	40	19	38	38	44	36	35	260	17	46	27	28	11	25	1,197	11,574
07/10	25	28	23	24	22	17	30	22	21	71	76	52	40	81	42	47	41	29	48	50	62	90	79	49	1,069	12,643
07/11	63	80	30	31	24	47	28	51	33	35	47	44	41	55	43	65	59	69	44	43	89	60	69	38	1,188	13,831
07/12	57	39	49	30	77	54	64	61	75	36	78	101	106	178	107	96	110	77	136	88	74	115	116	102	2,026	15,857
07/13	57	66	62	47	40	41	54	37	22	34	80	41	65	107	120	133	142	85	214	71	98	155	299	546	2,616	18,473
07/14	624	675	429	420	386	600	527	475	170	1,597	1,685	2,418	3,601	3,353	3,824	4,268	4,136	4,170	4,202	4,032	3,942	3,936	4,007	3,919	57,396	75,869
07/15	3,692	2,625	2,443	2,253	2,086	2,403	2,108	2,578	2,479	1,859	2,331	2,732	3,413	3,639	3,809	3,946	3,594	3,376	3,252	3,083	3,280	2,781	2,226	1,997	67,985	143,854
07/16	2,713	2,656	2,374	1,855	1,611	1,998	2,045	2,442	2,094	2,160	2,137	3,068	3,245	2,453	1,772	2,068	1,555	1,320	1,206	1,270	884	1,165	875	1,057	46,023	189,877
07/17	1,362	1,338	863	864	654	662	507	560	788	752	746	735	855	795	875	1,007	1,187	991	673	508	560	686	510	281	18,759	208,636
07/18	337	303	94	56	99	245	286	437	553	544	539	784	750	870	959	1,095	765	710	630	548	669	535	519	333	12,660	221,296
07/19	191	372	161	86	145	97	194	247	267	362	394	419	589	522	508	650	778	759	434	310	258	249	152	247	8,391	229,687
07/20	108	180	145	165	58	107	79	121	194	107	272	76	136	198	177	124	203	246	215	158	153	161	147	204	3,734	233,421
07/21	142	143	115	60	72	55	126	167	254	309	220	170	342	509	452	915	1,337	1,238	1,008	1,197	1,091	1,026	1,199	1,381	13,528	246,949
07/22	968	1,075	1,001	949	1,118	1,626	2,089	2,579	2,734	3,471	3,213	3,258	3,738	3,537	3,096	2,639	2,127	1,950	2,173	1,894	1,340	990	767	926	49,258	296,207
07/23	946	696	423	620	168	132	375	546	731	396	352	584	663	532	264	329	254	318	656	960	1,078	990	542	863	13,418	309,625
07/24	449	278	194	211	171	445	450	641	982	911	926	1,104	1,110	833	581	714	544	547	444	681	965	1,080	847	752	15,860	325,485
07/25	467	325	294	216	142	153	376	944	1,132	1,261	1,190	1,309	1,084	1,052	718	587	675	691	564	645	958	843	753	600	16,979	342,464

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Appendix A4.–Page 2 of 2.

Date	Counts by Hour																								Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Total
07/26	376	620	435	270	193	170	330	547	909	1,162	1,391	1,532	2,033	1,393	1,416	1,379	1,648	1,176	702	796	604	925	1,316	1,480	22,803	365,267
07/27	1,118	770	247	217	142	140	356	329	522	269	351	742	895	572	515	759	818	716	757	473	385	878	1,101	715	13,787	379,054
07/28	302	222	137	102	110	353	630	335	701	1,146	1,260	1,758	1,369	1,140	959	1,241	1,093	1,154	1,343	1,171	1,390	1,757	1,842	1,539	23,054	402,108
07/29	825	255	226	139	93	183	592	562	722	881	813	1,216	1,455	1,120	1,005	1,150	1,030	675	467	309	566	343	408	220	15,255	417,363
07/30	296	348	257	88	81	124	182	223	434	391	563	607	1,153	1,164	1,047	663	622	613	482	408	678	545	379	457	11,805	429,168
07/31	495	346	227	154	253	211	321	318	364	323	311	398	452	811	803	754	595	390	335	381	228	159	119	153	8,901	438,069
08/01	156	124	152	82	68	153	113	202	202	223	258	312	391	370	496	444	285	263	279	202	294	264	170	184	5,687	443,756
08/02	180	67	65	132	107	46	118	124	116	247	179	191	310	447	650	736	710	393	649	543	425	182	160	329	7,106	450,862
08/03	554	201	379	307	218	700	413	435	422	320	578	662	726	754	1,082	1,512	1,638	1,147	834	602	382	341	376	392	14,975	465,837
08/04	419	248	349	316	301	337	554	803	699	867	850	794	973	1,243	1,161	1,199	1,186	1,308	1,162	947	1,277	1,242	952	538	19,725	485,562
08/05	393	286	325	215	215	330	500	802	611	533	439	585	821	755	1,087	1,190	858	974	750	623	584	414	444	393	14,127	499,689
08/06	380	312	301	239	372	416	799	845	781	652	533	825	1,050	941	855	705	493	381	640	835	949	1,070	858	698	15,930	515,619
08/07	497	410	430	346	286	278	699	736	857	837	659	556	806	986	822	936	774	785	481	579	726	1,188	1,313	815	16,802	532,421
08/08	302	258	175	206	148	305	359	398	314	327	276	332	432	484	554	492	609	604	774	618	771	603	866	757	10,964	543,385
08/09	473	442	280	211	295	367	604	810	929	935	1,095	1,010	1,288	1,455	1,580	1,344	1,532	1,725	1,313	1,394	988	977	907	853	22,807	566,192
08/10	655	346	316	291	1,348	1,460	768	1,195	1,422	1,536	1,058	959	1,146	1,653	1,659	1,847	1,892	1,848	1,631	1,934	1,866	1,922	1,530	1,462	31,744	597,936
08/11	952	1,455	2,194	1,982	2,162	2,475	1,014	1,201	1,304	1,743	1,260	958	923	1,204	2,173	1,555	1,559	1,727	1,809	2,186	2,275	2,318	2,141	1,989	40,559	638,495
08/12	1,058	1,166	1,016	727	515	662	1,297	1,502	1,533	1,571	1,371	1,308	1,282	2,112	2,408	2,199	2,340	1,987	1,880	2,341	2,394	2,629	2,891	1,953	40,142	678,637
08/13	1,081	447	177	224	207	575	1,622	1,040	902	964	824	694	732	1,066	1,529	1,889	1,719	1,178	1,268	1,727	1,817	1,589	1,460	969	25,700	704,337
08/14	708	599	411	428	421	352	530	698	567	771	672	403	485	732	734	1,255	1,468	1,086	1,168	1,493	1,387	1,241	688	657	18,954	723,291
08/15	614	496	264	211	247	233	424	489	520	683	584	423	418	533	610	651	978	1,128	1,179	993	606	854	519	250	13,907	737,198
08/16	257	122	168	180	126	185	315	290	350	501	491	373	501	475	657	780	1,241	1,019	1,088	967	849	666	581	428	12,610	749,808
08/17	358	206	181	186	250	358	494	752	960	1,157	1,028	1,075	1,784	1,958	2,075	2,056	2,275	2,730	2,619	2,626	2,072	2,151	1,959	1,593	32,903	782,711
08/18	914	646	393	355	293	369	1,308	1,508	1,950	2,884	2,476	1,395	1,289	1,897	2,514	2,758	3,096	2,975	2,745	2,998	2,512	2,311	1,834	1,352	42,772	825,483
Total	26,010	21,734	18,265	15,889	15,700	19,890	24,022	28,372	30,926	35,128	34,094	36,399	42,888	44,575	46,395	48,849	48,514	45,219	42,757	43,279	42,160	42,032	38,534	33,852	825,483	

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**Appendix A5.**—Percentage of daily total Kenai River north bank sonar counts by hour, 1 July through 18 August, 2004.

Date	Counts by Hour																								Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
07/01	3.8	7.3	5.8	4.0	7.0	4.6	1.7	5.1	2.2	2.3	2.3	5.8	8.9	6.7	4.9	4.0	3.4	3.2	3.4	2.9	1.9	2.1	3.8	2.8	100
07/02	4.3	6.0	7.7	4.9	3.0	2.6	3.1	2.0	1.8	2.3	3.5	7.6	6.4	4.1	5.7	4.7	2.7	2.7	3.8	3.9	3.7	4.1	3.5	5.9	100
07/03	4.3	6.5	12.5	8.0	5.4	2.6	2.7	4.1	3.9	5.0	4.7	3.6	3.4	3.4	4.5	2.6	3.3	2.9	2.5	3.4	2.1	2.9	2.5	3.4	100
07/04	8.7	6.2	8.9	1.5	2.0	1.9	3.6	3.5	9.0	3.8	3.2	4.5	4.0	3.7	4.1	3.6	3.8	3.0	1.7	2.6	2.9	3.0	4.0	6.2	100
07/05	6.6	6.0	7.2	5.5	5.5	4.1	4.0	2.1	3.9	3.0	4.2	3.4	5.1	2.7	4.6	6.6	7.5	3.8	1.7	2.0	2.8	2.7	2.5	2.6	100
07/06	3.0	3.4	3.7	2.5	4.1	7.7	4.7	4.9	2.9	4.7	6.0	6.6	4.1	2.4	3.8	4.5	5.6	5.0	4.1	4.7	4.4	1.8	3.3	2.1	100
07/07	2.8	2.8	3.0	1.4	2.2	4.4	3.2	2.8	1.9	2.5	0.5	1.3	1.2	1.0	1.8	4.2	5.9	9.8	9.4	10.0	9.9	7.3	5.9	4.6	100
07/08	3.3	5.1	6.2	7.6	6.3	6.2	7.3	4.9	4.5	3.5	3.7	3.0	3.7	2.7	2.7	2.7	2.5	3.7	2.9	3.8	3.8	3.2	3.5	3.3	100
07/09	5.2	6.8	7.8	6.4	6.3	7.0	5.9	3.7	4.4	4.3	4.6	3.7	3.8	5.4	2.7	4.3	4.2	2.7	1.3	1.2	1.8	0.8	1.2	4.3	100
07/10	3.8	2.4	3.6	1.7	2.8	6.4	3.1	6.0	3.8	3.6	2.8	3.8	3.2	3.9	2.7	4.5	6.3	5.6	5.1	5.0	4.2	4.1	5.7	5.7	100
07/11	4.7	4.3	2.9	4.1	6.1	5.4	4.3	6.4	5.9	3.4	3.6	4.2	7.3	5.3	4.9	2.9	1.2	2.0	1.8	4.6	3.4	2.3	4.5	4.3	100
07/12	4.0	3.2	3.4	2.4	3.4	6.1	3.8	3.9	5.0	5.4	5.3	3.6	5.6	5.3	10.4	4.9	1.0	2.6	0.7	2.8	3.6	2.7	5.3	5.8	100
07/13	3.3	6.4	6.3	3.9	2.2	4.9	2.1	2.3	3.9	2.9	3.8	4.1	7.0	2.8	3.1	3.1	3.4	2.2	2.1	1.1	1.6	1.2	7.9	18.4	100
07/14	2.6	3.5	2.2	1.3	1.6	2.4	2.3	2.4	3.1	3.1	3.1	2.8	3.8	4.9	6.7	6.5	6.1	6.0	5.7	6.5	6.5	5.5	5.8	5.6	100
07/15	4.8	5.0	4.1	3.9	4.0	4.7	5.5	5.3	3.9	3.3	3.5	4.1	3.6	4.5	5.3	3.2	2.4	4.5	3.9	3.8	3.9	4.3	4.0	4.6	100
07/16	6.3	3.2	5.7	5.7	6.2	6.5	7.2	6.7	4.9	4.4	5.1	4.1	3.6	2.8	3.8	3.6	3.4	2.0	2.6	2.3	2.3	2.4	2.6	2.7	100
07/17	5.4	4.5	5.8	5.8	5.8	4.7	8.3	7.9	4.6	4.2	3.2	3.8	3.2	2.5	2.2	2.7	2.8	3.4	3.4	2.8	2.9	3.4	3.4	3.4	100
07/18	4.8	4.2	3.8	3.0	1.9	1.3	2.2	2.8	3.0	2.7	2.5	3.4	3.6	4.8	4.9	6.4	6.3	5.6	6.1	5.0	6.0	6.1	4.4	5.3	100
07/19	8.9	6.2	6.6	5.0	3.4	5.2	4.6	3.9	3.2	3.7	3.4	4.4	3.5	3.5	3.3	3.5	3.1	3.6	4.6	3.9	3.1	2.8	3.2	3.5	100
07/20	6.3	4.3	3.2	5.1	4.8	3.4	5.3	5.5	3.7	3.4	3.0	3.3	3.0	3.8	4.9	4.3	4.2	6.2	4.8	3.4	3.4	3.3	3.5	4.0	100
07/21	1.7	1.2	1.2	0.9	1.0	1.5	1.5	1.9	1.0	1.4	0.9	3.1	4.9	4.2	3.5	6.8	6.3	5.4	6.5	6.7	8.6	10.8	10.1	8.9	100
07/22	5.4	4.2	4.0	5.2	4.6	2.5	3.1	2.5	2.5	3.3	5.3	5.9	5.7	6.5	5.9	4.8	4.2	4.8	4.8	3.8	3.4	2.9	2.6	1.8	100
07/23	6.1	8.6	6.7	5.6	3.2	3.1	3.2	6.4	6.6	3.5	2.5	3.5	3.4	2.7	3.8	2.5	2.4	2.0	2.9	3.6	4.5	3.9	4.7	4.4	100
07/24	4.1	4.6	3.9	2.9	2.0	3.8	6.5	3.0	3.7	4.9	4.8	4.0	4.6	5.1	4.0	3.3	3.1	4.1	3.9	5.7	5.1	5.9	4.3	3.0	100
07/25	2.4	5.9	4.6	3.8	2.7	3.1	5.4	4.3	2.5	2.4	3.0	4.9	7.7	6.3	6.8	4.0	2.6	1.9	2.3	3.0	3.5	6.2	5.3	5.3	100
07/26	6.2	3.4	4.5	4.4	3.8	3.1	1.7	2.3	2.5	4.1	4.8	4.0	3.5	6.1	4.4	5.1	3.3	3.9	4.4	4.6	4.1	5.0	4.9	5.9	100
07/27	4.5	4.1	4.1	3.1	4.1	4.2	2.8	3.4	3.0	2.5	3.3	3.8	3.2	3.6	4.7	5.5	5.8	4.8	4.7	5.6	5.9	3.1	3.8	6.4	100
07/28	7.0	5.4	3.4	3.2	2.8	2.3	2.1	2.4	3.6	4.4	3.4	3.2	4.9	3.0	5.4	4.4	4.9	5.0	5.5	6.0	3.6	3.9	4.2	5.9	100
07/29	6.8	6.7	5.3	4.2	3.8	3.4	4.4	5.4	2.9	3.4	3.6	3.6	6.6	4.6	4.6	4.3	4.1	2.9	3.7	3.6	3.8	2.5	2.3	3.4	100
07/30	5.2	3.9	3.4	3.7	1.6	2.9	2.9	2.7	2.3	2.7	2.2	3.2	6.8	5.7	5.0	5.6	5.0	4.4	6.2	5.9	4.5	5.6	6.2	2.3	100

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Date	Counts by Hour																								Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
07/31	2.4	3.3	5.3	4.8	3.9	5.3	5.0	3.9	3.6	3.4	3.3	3.4	5.2	5.3	3.1	5.4	4.7	3.5	4.3	4.2	5.2	3.6	5.0	2.9	100
08/01	4.4	5.0	3.8	2.7	3.1	2.9	3.1	3.4	2.9	3.3	2.2	2.6	3.1	6.0	5.0	7.3	5.5	4.7	4.4	5.5	4.0	5.3	5.9	4.1	100
08/02	4.1	3.7	3.2	4.0	3.7	3.4	3.6	2.2	1.4	1.2	1.2	0.6	0.8	1.3	3.4	4.7	3.4	2.8	5.8	4.3	9.6	10.5	12.2	8.7	100
08/03	3.5	4.7	5.5	5.5	5.2	3.3	2.6	3.5	4.1	3.9	2.7	3.0	3.9	1.9	3.7	4.2	5.0	5.8	5.3	4.9	5.2	5.2	4.0	3.5	100
08/04	3.8	3.4	4.1	5.2	5.3	5.4	4.1	3.2	3.5	2.9	2.6	2.5	3.0	2.7	5.2	6.3	6.0	5.3	5.6	3.9	4.1	5.4	2.7	3.9	100
08/05	4.5	4.0	7.4	6.2	6.3	5.6	5.7	5.8	4.4	3.7	2.5	3.9	4.3	3.5	1.5	2.2	1.8	3.9	6.4	3.9	2.4	3.7	3.4	3.0	100
08/06	7.7	6.7	6.3	7.6	8.8	8.8	8.5	8.1	6.2	5.3	2.6	1.9	3.4	2.4	1.5	1.3	0.8	1.2	0.5	0.7	0.5	1.7	3.2	4.5	100
08/07	8.5	7.8	6.4	6.4	6.2	5.9	5.9	7.3	7.6	6.1	2.9	0.7	1.8	1.9	1.4	1.6	1.7	1.2	0.9	0.8	0.5	3.3	5.3	8.1	100
08/08	14.5	11.0	10.0	7.0	6.1	4.2	4.7	3.8	4.5	3.8	2.4	1.9	1.4	1.5	0.9	1.8	1.2	1.1	0.7	2.3	2.0	2.8	4.8	5.7	100
08/09	2.9	3.1	3.2	1.4	2.1	1.8	1.5	2.6	3.7	3.7	3.2	2.4	3.9	5.7	6.8	5.6	4.8	3.3	4.6	6.1	6.5	7.0	5.9	8.1	100
08/10	6.6	7.4	4.8	3.2	3.0	3.2	2.6	3.0	3.9	1.9	1.1	0.8	2.2	2.7	2.9	2.6	2.3	2.6	3.2	4.0	6.2	10.3	10.3	8.9	100
08/11	8.5	5.5	7.1	5.1	2.2	2.0	5.3	7.3	7.2	5.8	2.3	2.1	1.8	2.0	1.4	2.1	2.4	1.7	1.8	2.7	5.2	5.7	6.3	6.3	100
08/12	3.8	3.1	3.9	8.6	10.0	8.7	3.4	3.1	5.5	5.0	2.7	1.7	2.0	2.7	2.7	2.0	2.8	3.1	3.9	4.2	3.4	4.5	4.3	4.5	100
08/13	6.8	4.7	5.5	5.2	4.2	3.1	4.2	5.7	7.3	8.2	4.4	2.6	2.1	1.5	2.4	2.5	2.6	2.9	3.2	3.1	2.8	2.7	6.6	5.6	100
08/14	8.2	7.6	6.3	5.5	3.8	4.1	5.3	6.1	7.1	8.7	6.3	2.4	1.2	1.0	0.9	1.6	1.5	1.8	2.5	2.2	2.7	4.0	4.3	5.0	100
08/15	5.6	6.6	5.9	5.4	4.9	3.1	2.8	4.7	5.3	6.9	4.7	2.8	1.9	1.0	2.5	4.2	4.4	3.8	3.8	4.4	4.3	4.3	3.7	3.1	100
08/16	8.3	5.3	4.4	3.9	3.6	3.0	4.6	4.8	6.0	5.2	4.3	2.2	1.6	1.2	2.0	1.0	1.1	1.5	4.1	4.6	4.6	6.8	7.1	8.9	100
08/17	2.7	2.6	1.9	1.6	2.0	2.0	1.8	2.7	6.1	7.7	4.4	2.2	1.7	2.8	1.3	2.2	1.8	3.4	5.9	8.3	10.6	10.7	8.2	5.5	100
08/18	4.2	3.3	2.1	2.2	2.3	3.1	4.6	5.3	5.4	5.3	3.2	3.2	2.0	3.3	2.4	2.4	4.0	5.3	5.5	6.2	7.2	7.8	5.6	4.0	100
Percentage of																									
Daily Total	5.0	4.6	4.5	4.3	4.0	3.9	4.2	4.2	4.0	3.9	3.4	3.4	3.8	3.8	4.2	4.1	3.8	3.9	4.2	4.2	4.4	4.7	4.7	4.7	100

**Appendix A6.**—Percentage of daily total Kenai River south bank sonar counts by hour, 1 July through 18 August 2004.

Date	Counts by Hour																								Daily Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
07/01	2.4	3.9	2.1	1.9	1.7	12.7	4.4	1.7	2.4	2.1	3.2	7.8	5.4	6.3	3.5	6.2	2.0	3.8	3.5	5.2	4.4	4.6	5.3	3.4	100
07/02	2.4	3.6	3.2	1.5	2.5	1.7	1.1	3.0	3.2	3.2	14.0	2.0	3.5	4.8	5.3	6.0	4.5	3.5	4.8	7.9	5.5	4.7	4.5	3.5	100
07/03	4.1	5.4	5.5	2.9	2.3	2.0	2.7	2.2	0.6	3.5	1.4	1.6	4.3	12.2	4.8	6.1	4.1	3.4	2.4	6.6	6.9	4.4	6.7	3.8	100
07/04	3.0	3.5	5.2	3.8	2.8	1.6	2.9	3.7	2.6	3.9	4.0	5.0	3.0	9.4	11.0	5.4	5.0	2.4	1.7	3.1	2.6	4.3	6.7	3.1	100
07/05	4.7	6.4	10.2	9.7	4.7	6.5	5.6	5.0	4.1	2.4	1.8	4.3	3.5	2.4	2.1	2.4	2.7	2.7	2.4	4.6	3.4	2.5	2.2	3.7	100
07/06	2.3	1.7	2.7	3.5	3.2	1.9	4.3	3.0	4.8	2.0	2.2	3.1	4.4	3.0	5.6	8.3	12.9	4.5	6.5	3.0	2.4	4.0	5.9	4.9	100
07/07	2.1	1.6	3.2	2.6	6.3	2.5	1.8	1.7	2.7	2.2	3.1	2.0	2.5	2.9	4.8	7.1	4.8	5.1	7.2	5.2	9.2	8.1	7.6	3.5	100
07/08	5.1	4.0	2.6	1.6	2.8	2.5	2.9	3.0	1.1	2.2	3.2	3.7	2.2	1.9	7.3	6.4	4.6	4.8	7.2	5.5	8.7	8.3	5.8	2.5	100
07/09	8.4	6.6	3.8	7.0	3.8	4.3	2.7	2.3	4.3	1.4	3.3	1.6	3.2	3.2	3.7	3.0	2.9	21.7	1.4	3.8	2.3	2.3	0.9	2.1	100
07/10	2.3	2.6	2.2	2.2	2.1	1.6	2.8	2.1	2.0	6.6	7.1	4.9	3.7	7.6	3.9	4.4	3.8	2.7	4.5	4.7	5.8	8.4	7.4	4.6	100
07/11	5.3	6.7	2.5	2.6	2.0	4.0	2.4	4.3	2.8	2.9	4.0	3.7	3.5	4.6	3.6	5.5	5.0	5.8	3.7	3.6	7.5	5.1	5.8	3.2	100
07/12	2.8	1.9	2.4	1.5	3.8	2.7	3.2	3.0	3.7	1.8	3.8	5.0	5.2	8.8	5.3	4.7	5.4	3.8	6.7	4.3	3.7	5.7	5.7	5.0	100
07/13	2.2	2.5	2.4	1.8	1.5	1.6	2.1	1.4	0.8	1.3	3.1	1.6	2.5	4.1	4.6	5.1	5.4	3.2	8.2	2.7	3.7	5.9	11.4	20.9	100
07/14	1.1	1.2	0.7	0.7	0.7	1.0	0.9	0.8	0.3	2.8	2.9	4.2	6.3	5.8	6.7	7.4	7.2	7.3	7.3	7.0	6.9	6.9	7.0	6.8	100
07/15	5.4	3.9	3.6	3.3	3.1	3.5	3.1	3.8	3.6	2.7	3.4	4.0	5.0	5.4	5.6	5.8	5.3	5.0	4.8	4.5	4.8	4.1	3.3	2.9	100
07/16	5.9	5.8	5.2	4.0	3.5	4.3	4.4	5.3	4.5	4.7	4.6	6.7	7.1	5.3	3.9	4.5	3.4	2.9	2.6	2.8	1.9	2.5	1.9	2.3	100
07/17	7.3	7.1	4.6	4.6	3.5	3.5	2.7	3.0	4.2	4.0	4.0	3.9	4.6	4.2	4.7	5.4	6.3	5.3	3.6	2.7	3.0	3.7	2.7	1.5	100
07/18	2.7	2.4	0.7	0.4	0.8	1.9	2.3	3.5	4.4	4.3	4.3	6.2	5.9	6.9	7.6	8.6	6.0	5.6	5.0	4.3	5.3	4.2	4.1	2.6	100
07/19	2.3	4.4	1.9	1.0	1.7	1.2	2.3	2.9	3.2	4.3	4.7	5.0	7.0	6.2	6.1	7.7	9.3	9.0	5.2	3.7	3.1	3.0	1.8	2.9	100
07/20	2.9	4.8	3.9	4.4	1.6	2.9	2.1	3.2	5.2	2.9	7.3	2.0	3.6	5.3	4.7	3.3	5.4	6.6	5.8	4.2	4.1	4.3	3.9	5.5	100
07/21	1.0	1.1	0.9	0.4	0.5	0.4	0.9	1.2	1.9	2.3	1.6	1.3	2.5	3.8	3.3	6.8	9.9	9.2	7.5	8.8	8.1	7.6	8.9	10.2	100
07/22	2.0	2.2	2.0	1.9	2.3	3.3	4.2	5.2	5.6	7.0	6.5	6.6	7.6	7.2	6.3	5.4	4.3	4.0	4.4	3.8	2.7	2.0	1.6	1.9	100
07/23	7.1	5.2	3.2	4.6	1.3	1.0	2.8	4.1	5.4	3.0	2.6	4.4	4.9	4.0	2.0	2.5	1.9	2.4	4.9	7.2	8.0	7.4	4.0	6.4	100
07/24	2.8	1.8	1.2	1.3	1.1	2.8	2.8	4.0	6.2	5.7	5.8	7.0	7.0	5.3	3.7	4.5	3.4	3.4	2.8	4.3	6.1	6.8	5.3	4.7	100
07/25	2.8	1.9	1.7	1.3	0.8	0.9	2.2	5.6	6.7	7.4	7.0	7.7	6.4	6.2	4.2	3.5	4.0	4.1	3.3	3.8	5.6	5.0	4.4	3.5	100
07/26	1.6	2.7	1.9	1.2	0.8	0.7	1.4	2.4	4.0	5.1	6.1	6.7	8.9	6.1	6.2	6.0	7.2	5.2	3.1	3.5	2.6	4.1	5.8	6.5	100
07/27	8.1	5.6	1.8	1.6	1.0	1.0	2.6	2.4	3.8	2.0	2.5	5.4	6.5	4.1	3.7	5.5	5.9	5.2	5.5	3.4	2.8	6.4	8.0	5.2	100
07/28	1.3	1.0	0.6	0.4	0.5	1.5	2.7	1.5	3.0	5.0	5.5	7.6	5.9	4.9	4.2	5.4	4.7	5.0	5.8	5.1	6.0	7.6	8.0	6.7	100
07/29	5.4	1.7	1.5	0.9	0.6	1.2	3.9	3.7	4.7	5.8	5.3	8.0	9.5	7.3	6.6	7.5	6.8	4.4	3.1	2.0	3.7	2.2	2.7	1.4	100
07/30	2.5	2.9	2.2	0.7	0.7	1.1	1.5	1.9	3.7	3.3	4.8	5.1	9.8	9.9	8.9	5.6	5.3	5.2	4.1	3.5	5.7	4.6	3.2	3.9	100

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Date	Counts by Hour																								Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
07/31	5.6	3.9	2.6	1.7	2.8	2.4	3.6	3.6	4.1	3.6	3.5	4.5	5.1	9.1	9.0	8.5	6.7	4.4	3.8	4.3	2.6	1.8	1.3	1.7	100
08/01	2.7	2.2	2.7	1.4	1.2	2.7	2.0	3.6	3.6	3.9	4.5	5.5	6.9	6.5	8.7	7.8	5.0	4.6	4.9	3.6	5.2	4.6	3.0	3.2	100
08/02	2.5	0.9	0.9	1.9	1.5	0.6	1.7	1.7	1.6	3.5	2.5	2.7	4.4	6.3	9.1	10.4	10.0	5.5	9.1	7.6	6.0	2.6	2.3	4.6	100
08/03	3.7	1.3	2.5	2.1	1.5	4.7	2.8	2.9	2.8	2.1	3.9	4.4	4.8	5.0	7.2	10.1	10.9	7.7	5.6	4.0	2.6	2.3	2.5	2.6	100
08/04	2.1	1.3	1.8	1.6	1.5	1.7	2.8	4.1	3.5	4.4	4.3	4.0	4.9	6.3	5.9	6.1	6.0	6.6	5.9	4.8	6.5	6.3	4.8	2.7	100
08/05	2.8	2.0	2.3	1.5	1.5	2.3	3.5	5.7	4.3	3.8	3.1	4.1	5.8	5.3	7.7	8.4	6.1	6.9	5.3	4.4	4.1	2.9	3.1	2.8	100
08/06	2.4	2.0	1.9	1.5	2.3	2.6	5.0	5.3	4.9	4.1	3.3	5.2	6.6	5.9	5.4	4.4	3.1	2.4	4.0	5.2	6.0	6.7	5.4	4.4	100
08/07	3.0	2.4	2.6	2.1	1.7	1.7	4.2	4.4	5.1	5.0	3.9	3.3	4.8	5.9	4.9	5.6	4.6	4.7	2.9	3.4	4.3	7.1	7.8	4.9	100
08/08	2.8	2.4	1.6	1.9	1.3	2.8	3.3	3.6	2.9	3.0	2.5	3.0	3.9	4.4	5.1	4.5	5.6	5.5	7.1	5.6	7.0	5.5	7.9	6.9	100
08/09	2.1	1.9	1.2	0.9	1.3	1.6	2.6	3.6	4.1	4.1	4.8	4.4	5.6	6.4	6.9	5.9	6.7	7.6	5.8	6.1	4.3	4.3	4.0	3.7	100
08/10	2.1	1.1	1.0	0.9	4.2	4.6	2.4	3.8	4.5	4.8	3.3	3.0	3.6	5.2	5.2	5.8	6.0	5.8	5.1	6.1	5.9	6.1	4.8	4.6	100
08/11	2.3	3.6	5.4	4.9	5.3	6.1	2.5	3.0	3.2	4.3	3.1	2.4	2.3	3.0	5.4	3.8	3.8	4.3	4.5	5.4	5.6	5.7	5.3	4.9	100
08/12	2.6	2.9	2.5	1.8	1.3	1.6	3.2	3.7	3.8	3.9	3.4	3.3	3.2	5.3	6.0	5.5	5.8	4.9	4.7	5.8	6.0	6.5	7.2	4.9	100
08/13	4.2	1.7	0.7	0.9	0.8	2.2	6.3	4.0	3.5	3.8	3.2	2.7	2.8	4.1	5.9	7.4	6.7	4.6	4.9	6.7	7.1	6.2	5.7	3.8	100
08/14	3.7	3.2	2.2	2.3	2.2	1.9	2.8	3.7	3.0	4.1	3.5	2.1	2.6	3.9	3.9	6.6	7.7	5.7	6.2	7.9	7.3	6.5	3.6	3.5	100
08/15	4.4	3.6	1.9	1.5	1.8	1.7	3.0	3.5	3.7	4.9	4.2	3.0	3.0	3.8	4.4	4.7	7.0	8.1	8.5	7.1	4.4	6.1	3.7	1.8	100
08/16	2.0	1.0	1.3	1.4	1.0	1.5	2.5	2.3	2.8	4.0	3.9	3.0	4.0	3.8	5.2	6.2	9.8	8.1	8.6	7.7	6.7	5.3	4.6	3.4	100
08/17	1.1	0.6	0.6	0.6	0.8	1.1	1.5	2.3	2.9	3.5	3.1	3.3	5.4	6.0	6.3	6.2	6.9	8.3	8.0	8.0	6.3	6.5	6.0	4.8	100
08/18	2.1	1.5	0.9	0.8	0.7	0.9	3.1	3.5	4.6	6.7	5.8	3.3	3.0	4.4	5.9	6.4	7.2	7.0	6.4	7.0	5.9	5.4	4.3	3.2	100
Percentage of																									
Daily Total	3.2	2.6	2.2	1.9	1.9	2.4	2.9	3.4	3.7	4.3	4.1	4.4	5.2	5.4	5.6	5.9	5.9	5.5	5.2	5.2	5.1	5.1	4.7	4.1	100

**Appendix A7.—Kenai River north bank sonar counts by sector, 1 July through 18 August 2004.**

Date	Counts by Sector												Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	Total	Total
1-Jul	32	284	383	282	154	56	29	76	72	262	197	152	1,979	1,979
2-Jul	23	230	431	306	234	88	52	95	123	267	110	82	2,041	4,020
3-Jul	56	286	428	311	182	77	41	141	123	291	173	123	2,232	6,252
4-Jul	31	77	104	63	36	24	11	63	109	258	115	97	988	7,240
5-Jul	7	62	96	54	25	29	13	55	95	307	159	159	1,061	8,301
6-Jul	11	47	43	43	27	10	7	56	144	271	163	262	1,084	9,385
7-Jul	26	129	93	143	124	67	127	340	283	528	310	224	2,394	11,779
8-Jul	26	375	428	447	313	137	260	564	449	405	253	327	3,984	15,763
9-Jul	41	184	89	76	61	29	69	225	322	213	122	207	1,638	17,401
10-Jul	22	27	25	48	34	28	46	240	254	279	278	338	1,619	19,020
11-Jul	0	17	19	33	38	34	51	158	112	249	188	137	1,036	20,056
12-Jul	0	30	16	53	51	22	60	169	212	269	185	148	1,215	21,271
13-Jul	20	808	494	165	146	32	120	213	301	393	308	400	3,400	24,671
14-Jul	926	17,786	17,721	13,989	5,216	764	168	31	17	14	42	36	56,710	81,381
15-Jul	1,617	15,346	33,011	16,819	2,823	353	212	29	4	3	2	8	70,227	151,608
16-Jul	1,324	6,975	19,369	14,444	4,420	1,351	821	107	24	14	22	26	48,897	200,505
17-Jul	82	5,073	14,624	6,904	1,523	559	469	71	19	26	61	208	29,619	230,124
18-Jul	629	4,790	5,491	3,487	1,573	507	800	280	510	567	419	381	19,434	249,558
19-Jul	539	2,140	1,680	1,096	971	466	1,200	663	1,013	1,152	827	519	12,266	261,824
20-Jul	309	600	736	724	565	451	631	220	430	866	421	502	6,455	268,279
21-Jul	795	4,898	3,851	2,514	1,418	702	786	298	491	389	401	413	16,956	285,235
22-Jul	5,330	14,108	16,294	6,596	1,859	783	542	115	78	107	193	207	46,212	331,447
23-Jul	1,644	5,984	3,142	1,492	710	469	819	202	494	286	294	292	15,828	347,275
24-Jul	454	6,102	3,370	1,408	824	548	900	194	618	643	636	630	16,327	363,602
25-Jul	1,580	7,552	4,831	1,451	443	340	403	116	168	385	245	226	17,740	381,342
26-Jul	1,385	5,267	6,412	2,977	934	485	449	102	117	243	221	196	18,788	400,130
27-Jul	2,339	10,838	5,652	1,224	211	138	218	55	132	191	208	123	21,329	421,459
28-Jul	1,825	7,738	6,243	1,423	236	147	265	109	98	242	223	407	18,956	440,415
29-Jul	2,675	5,829	7,597	2,720	294	103	110	18	24	81	394	112	19,957	460,372
30-Jul	934	2,458	4,783	3,350	978	261	230	127	56	66	93	80	13,416	473,788
31-Jul	872	1,894	2,543	3,054	1,056	255	223	182	140	99	204	75	10,597	484,385
1-Aug	120	727	2,921	2,505	701	154	161	136	30	101	110	130	7,796	492,181
2-Aug	556	1,556	3,858	2,825	941	309	292	218	36	9	46	86	10,732	502,913
3-Aug	358	6,622	11,879	4,045	654	155	153	92	8	8	24	36	24,034	526,947
4-Aug	729	13,134	8,352	1,438	200	50	50	34	11	3	20	38	24,059	551,006
5-Aug	898	6,658	4,889	1,167	511	140	255	204	23	25	45	74	14,889	565,895
6-Aug	1,018	5,237	3,360	788	430	108	255	244	19	39	33	64	11,595	577,490
7-Aug	419	2,639	1,846	786	520	133	294	353	21	48	75	120	7,254	584,744
8-Aug	337	1,181	810	376	337	147	310	325	33	68	81	127	4,132	588,876
9-Aug	317	3,858	4,739	1,018	612	104	107	63	0	25	35	113	10,991	599,867
10-Aug	874	7,068	5,885	1,937	1,748	235	533	733	129	112	206	184	19,644	619,511
11-Aug	602	4,061	4,401	2,299	1,401	164	438	900	163	140	271	195	15,035	634,546
12-Aug	367	3,149	4,707	3,012	4,898	1,460	777	946	103	53	127	260	19,859	654,405
13-Aug	219	2,173	3,205	3,586	3,244	2,781	758	613	68	141	157	142	17,087	671,492
14-Aug	104	1,584	2,591	2,491	1,747	816	556	708	99	106	46	261	11,109	682,601
15-Aug	169	1,278	2,214	1,966	1,129	753	342	170	28	59	26	36	8,170	690,771
16-Aug	225	957	832	948	941	425	194	49	7	9	1	0	4,588	695,359
17-Aug	183	2,211	4,616	2,604	1,371	443	166	151	26	13	7	7	11,798	707,157
18-Aug	385	1,331	2,044	3,557	2,090	873	513	255	9	8	5	15	11,085	718,242
Total	33,434	193,358	233,148	125,044	50,954	18,565	16,286	11,508	7,845	10,333	8,782	8,985	718,242	

**Appendix A8.**—Kenai River south bank sonar counts by sector, 1 July through 18 August, 2004.

Date	Counts by Sector												Daily Total	Cum Total
	1	2	3	4	5	6	7	8	9	10	11	12		
1-Jul	14	201	190	77	108	47	121	80	39	11	287	10	1,185	1,185
2-Jul	14	244	340	56	158	99	128	71	38	30	133	75	1,386	2,571
3-Jul	26	86	351	46	161	177	197	137	66	41	26	14	1,328	3,899
4-Jul	51	152	311	48	231	135	200	124	57	9	10	42	1,370	5,269
5-Jul	45	152	168	34	93	64	100	43	17	8	15	25	764	6,033
6-Jul	24	110	150	40	154	96	204	106	29	13	12	23	961	6,994
7-Jul	33	230	163	99	249	140	258	72	27	11	50	22	1,354	8,348
8-Jul	65	289	288	89	277	255	363	161	97	33	66	46	2,029	10,377
9-Jul	53	117	371	61	62	117	124	96	85	51	23	37	1,197	11,574
10-Jul	30	62	129	16	83	125	166	182	157	65	34	20	1,069	12,643
11-Jul	38	90	121	49	67	75	173	164	196	102	47	66	1,188	13,831
12-Jul	90	215	285	43	116	147	268	270	260	86	68	178	2,026	15,857
13-Jul	51	278	646	82	270	251	328	288	180	51	51	140	2,616	18,473
14-Jul	393	8,823	31,503	4,651	3,886	2,547	2,712	1,131	890	291	32	537	57,396	75,869
15-Jul	407	9,829	40,712	5,934	4,605	2,455	2,145	914	505	232	52	195	67,985	143,854
16-Jul	129	5,889	24,701	3,190	4,760	2,433	1,921	929	627	245	75	1,124	46,023	189,877
17-Jul	105	1,821	8,340	1,040	2,676	1,629	1,409	713	565	295	81	85	18,759	208,636
18-Jul	75	956	3,796	597	2,378	1,528	1,497	836	595	208	65	129	12,660	221,296
19-Jul	185	412	1,649	319	1,676	1,477	931	664	593	270	104	111	8,391	229,687
20-Jul	156	192	671	138	499	390	505	350	354	263	78	138	3,734	233,421
21-Jul	126	2,049	3,546	468	2,556	1,377	1,675	818	487	137	61	228	13,528	246,949
22-Jul	388	17,903	19,627	2,064	4,793	1,550	1,507	651	381	131	41	222	49,258	296,207
23-Jul	161	4,334	4,588	669	1,752	545	448	268	176	94	32	351	13,418	309,625
24-Jul	168	3,356	4,626	737	2,928	1,285	1,295	684	432	201	65	83	15,860	325,485
25-Jul	81	4,365	5,150	823	2,996	1,156	1,160	582	370	133	81	82	16,979	342,464
26-Jul	323	7,532	7,526	967	2,993	1,263	1,257	440	285	124	53	40	22,803	365,267
27-Jul	141	3,980	6,072	624	958	530	432	315	309	228	109	89	13,787	379,054
28-Jul	159	2,005	14,202	3,803	1,003	584	495	225	174	179	150	75	23,054	402,108
29-Jul	123	1,438	8,877	2,380	805	438	365	148	216	165	197	103	15,255	417,363
30-Jul	114	1,091	6,738	1,848	796	331	276	107	99	168	160	77	11,805	429,168
31-Jul	162	846	4,259	1,171	781	482	358	156	150	176	244	116	8,901	438,069
1-Aug	95	460	2,800	774	457	287	230	102	136	123	120	103	5,687	443,756
2-Aug	94	543	3,526	972	583	338	298	177	150	167	147	111	7,106	450,862
3-Aug	164	1,715	8,574	2,234	646	328	316	223	157	259	240	119	14,975	465,837
4-Aug	122	865	8,356	6,160	1,528	794	852	364	234	138	129	183	19,725	485,562
5-Aug	136	1,234	7,210	2,849	910	430	593	209	197	141	138	80	14,127	499,689
6-Aug	334	1,538	7,288	2,675	1,138	615	606	308	455	422	392	159	15,930	515,619
7-Aug	148	1,115	5,528	3,204	1,743	1,223	1,422	783	704	411	333	188	16,802	532,421
8-Aug	137	741	3,620	1,886	1,153	746	896	436	423	406	336	184	10,964	543,385
9-Aug	167	650	8,088	6,503	2,924	1,352	1,727	558	304	193	203	138	22,807	566,192
10-Aug	84	462	9,551	8,869	4,329	2,254	3,633	1,198	716	235	227	186	31,744	597,936
11-Aug	383	4,615	14,050	8,630	4,899	2,360	2,736	1,197	736	444	315	194	40,559	638,495
12-Aug	289	7,523	18,549	8,085	2,213	898	1,111	379	333	435	250	77	40,142	678,637
13-Aug	158	3,388	9,505	4,841	2,304	1,153	1,585	593	612	845	523	193	25,700	704,337
14-Aug	179	2,150	6,505	3,468	1,912	864	1,010	552	559	798	674	283	18,954	723,291
15-Aug	192	926	4,428	3,092	1,828	981	989	376	424	338	209	124	13,907	737,198
16-Aug	65	310	2,725	3,048	2,096	1,213	1,595	591	367	152	203	245	12,610	749,808
17-Aug	375	3,573	14,061	8,367	3,227	1,114	1,287	386	177	81	106	149	32,903	782,711
18-Aug	603	5,484	18,650	9,707	5,759	926	954	281	104	47	84	173	42,772	825,483
Total	7,655	116,339	353,110	117,527	84,519	41,604	44,858	20,438	15,244	9,686	7,131	7,372	825,483	

**Appendix A9.**—Percentage of daily total Kenai River north bank sonar counts by sector, 1 July through 18 August 2004.

Date	Counts by Sector												Daily Total
	1	2	3	4	5	6	7	8	9	10	11	12	
1-Jul	1.6	14.4	19.4	14.2	7.8	2.8	1.5	3.8	3.6	13.2	10.0	7.7	100
2-Jul	1.1	11.3	21.1	15.0	11.5	4.3	2.5	4.7	6.0	13.1	5.4	4.0	100
3-Jul	2.5	12.8	19.2	13.9	8.2	3.4	1.8	6.3	5.5	13.0	7.8	5.5	100
4-Jul	3.1	7.8	10.5	6.4	3.6	2.4	1.1	6.4	11.0	26.1	11.6	9.8	100
5-Jul	0.7	5.8	9.0	5.1	2.4	2.7	1.2	5.2	9.0	28.9	15.0	15.0	100
6-Jul	1.0	4.3	4.0	4.0	2.5	0.9	0.6	5.2	13.3	25.0	15.0	24.2	100
7-Jul	1.1	5.4	3.9	6.0	5.2	2.8	5.3	14.2	11.8	22.1	12.9	9.4	100
8-Jul	0.7	9.4	10.7	11.2	7.9	3.4	6.5	14.2	11.3	10.2	6.4	8.2	100
9-Jul	2.5	11.2	5.4	4.6	3.7	1.8	4.2	13.7	19.7	13.0	7.4	12.6	100
10-Jul	1.4	1.7	1.5	3.0	2.1	1.7	2.8	14.8	15.7	17.2	17.2	20.9	100
11-Jul	0.0	1.6	1.8	3.2	3.7	3.3	4.9	15.3	10.8	24.0	18.1	13.2	100
12-Jul	0.0	2.5	1.3	4.4	4.2	1.8	4.9	13.9	17.4	22.1	15.2	12.2	100
13-Jul	0.6	23.8	14.5	4.9	4.3	0.9	3.5	6.3	8.9	11.6	9.1	11.8	100
14-Jul	1.6	31.4	31.2	24.7	9.2	1.3	0.3	0.1	0.0	0.0	0.1	0.1	100
15-Jul	2.3	21.9	47.0	23.9	4.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	100
16-Jul	2.7	14.3	39.6	29.5	9.0	2.8	1.7	0.2	0.0	0.0	0.0	0.1	100
17-Jul	0.3	17.1	49.4	23.3	5.1	1.9	1.6	0.2	0.1	0.1	0.2	0.7	100
18-Jul	3.2	24.6	28.3	17.9	8.1	2.6	4.1	1.4	2.6	2.9	2.2	2.0	100
19-Jul	4.4	17.4	13.7	8.9	7.9	3.8	9.8	5.4	8.3	9.4	6.7	4.2	100
20-Jul	4.8	9.3	11.4	11.2	8.8	7.0	9.8	3.4	6.7	13.4	6.5	7.8	100
21-Jul	4.7	28.9	22.7	14.8	8.4	4.1	4.6	1.8	2.9	2.3	2.4	2.4	100
22-Jul	11.5	30.5	35.3	14.3	4.0	1.7	1.2	0.2	0.2	0.2	0.4	0.4	100
23-Jul	10.4	37.8	19.9	9.4	4.5	3.0	5.2	1.3	3.1	1.8	1.9	1.8	100
24-Jul	2.8	37.4	20.6	8.6	5.0	3.4	5.5	1.2	3.8	3.9	3.9	3.9	100
25-Jul	8.9	42.6	27.2	8.2	2.5	1.9	2.3	0.7	0.9	2.2	1.4	1.3	100
26-Jul	7.4	28.0	34.1	15.8	5.0	2.6	2.4	0.5	0.6	1.3	1.2	1.0	100
27-Jul	11.0	50.8	26.5	5.7	1.0	0.6	1.0	0.3	0.6	0.9	1.0	0.6	100
28-Jul	9.6	40.8	32.9	7.5	1.2	0.8	1.4	0.6	0.5	1.3	1.2	2.1	100
29-Jul	13.4	29.2	38.1	13.6	1.5	0.5	0.6	0.1	0.1	0.4	2.0	0.6	100
30-Jul	7.0	18.3	35.7	25.0	7.3	1.9	1.7	0.9	0.4	0.5	0.7	0.6	100
31-Jul	8.2	17.9	24.0	28.8	10.0	2.4	2.1	1.7	1.3	0.9	1.9	0.7	100
1-Aug	1.5	9.3	37.5	32.1	9.0	2.0	2.1	1.7	0.4	1.3	1.4	1.7	100
2-Aug	5.2	14.5	35.9	26.3	8.8	2.9	2.7	2.0	0.3	0.1	0.4	0.8	100
3-Aug	1.5	27.6	49.4	16.8	2.7	0.6	0.6	0.4	0.0	0.0	0.1	0.1	100
4-Aug	3.0	54.6	34.7	6.0	0.8	0.2	0.2	0.1	0.0	0.0	0.1	0.2	100
5-Aug	6.0	44.7	32.8	7.8	3.4	0.9	1.7	1.4	0.2	0.2	0.3	0.5	100
6-Aug	8.8	45.2	29.0	6.8	3.7	0.9	2.2	2.1	0.2	0.3	0.3	0.6	100
7-Aug	5.8	36.4	25.4	10.8	7.2	1.8	4.1	4.9	0.3	0.7	1.0	1.7	100
8-Aug	8.2	28.6	19.6	9.1	8.2	3.6	7.5	7.9	0.8	1.6	2.0	3.1	100
9-Aug	2.9	35.1	43.1	9.3	5.6	0.9	1.0	0.6	0.0	0.2	0.3	1.0	100
10-Aug	4.4	36.0	30.0	9.9	8.9	1.2	2.7	3.7	0.7	0.6	1.0	0.9	100
11-Aug	4.0	27.0	29.3	15.3	9.3	1.1	2.9	6.0	1.1	0.9	1.8	1.3	100
12-Aug	1.8	15.9	23.7	15.2	24.7	7.4	3.9	4.8	0.5	0.3	0.6	1.3	100
13-Aug	1.3	12.7	18.8	21.0	19.0	16.3	4.4	3.6	0.4	0.8	0.9	0.8	100
14-Aug	0.9	14.3	23.3	22.4	15.7	7.3	5.0	6.4	0.9	1.0	0.4	2.3	100
15-Aug	2.1	15.6	27.1	24.1	13.8	9.2	4.2	2.1	0.3	0.7	0.3	0.4	100
16-Aug	4.9	20.9	18.1	20.7	20.5	9.3	4.2	1.1	0.2	0.2	0.0	0.0	100
17-Aug	1.6	18.7	39.1	22.1	11.6	3.8	1.4	1.3	0.2	0.1	0.1	0.1	100
18-Aug	3.5	12.0	18.4	32.1	18.9	7.9	4.6	2.3	0.1	0.1	0.0	0.1	100
Percentage of Daily Total	4.7	26.9	32.5	17.4	7.1	2.6	2.3	1.6	1.1	1.4	1.2	1.3	100

**Appendix A10.**—Percentage of daily total Kenai River south bank sonar counts by sector, 1 July through 18 August 2004.

Date	Counts by Sector												Daily Total
	1	2	3	4	5	6	7	8	9	10	11	12	
1-Jul	1.2	17.0	16.0	6.5	9.1	4.0	10.2	6.8	3.3	0.9	24.2	0.8	100
2-Jul	1.0	17.6	24.5	4.0	11.4	7.1	9.2	5.1	2.7	2.2	9.6	5.4	100
3-Jul	2.0	6.5	26.4	3.5	12.1	13.3	14.8	10.3	5.0	3.1	2.0	1.1	100
4-Jul	3.7	11.1	22.7	3.5	16.9	9.9	14.6	9.1	4.2	0.7	0.7	3.1	100
5-Jul	5.9	19.9	22.0	4.5	12.2	8.4	13.1	5.6	2.2	1.0	2.0	3.3	100
6-Jul	2.5	11.4	15.6	4.2	16.0	10.0	21.2	11.0	3.0	1.4	1.2	2.4	100
7-Jul	2.4	17.0	12.0	7.3	18.4	10.3	19.1	5.3	2.0	0.8	3.7	1.6	100
8-Jul	3.2	14.2	14.2	4.4	13.7	12.6	17.9	7.9	4.8	1.6	3.3	2.3	100
9-Jul	4.4	9.8	31.0	5.1	5.2	9.8	10.4	8.0	7.1	4.3	1.9	3.1	100
10-Jul	2.8	5.8	12.1	1.5	7.8	11.7	15.5	17.0	14.7	6.1	3.2	1.9	100
11-Jul	3.2	7.6	10.2	4.1	5.6	6.3	14.6	13.8	16.5	8.6	4.0	5.6	100
12-Jul	4.4	10.6	14.1	2.1	5.7	7.3	13.2	13.3	12.8	4.2	3.4	8.8	100
13-Jul	1.9	10.6	24.7	3.1	10.3	9.6	12.5	11.0	6.9	1.9	1.9	5.4	100
14-Jul	0.7	15.4	54.9	8.1	6.8	4.4	4.7	2.0	1.6	0.5	0.1	0.9	100
15-Jul	0.6	14.5	59.9	8.7	6.8	3.6	3.2	1.3	0.7	0.3	0.1	0.3	100
16-Jul	0.3	12.8	53.7	6.9	10.3	5.3	4.2	2.0	1.4	0.5	0.2	2.4	100
17-Jul	0.6	9.7	44.5	5.5	14.3	8.7	7.5	3.8	3.0	1.6	0.4	0.5	100
18-Jul	0.6	7.6	30.0	4.7	18.8	12.1	11.8	6.6	4.7	1.6	0.5	1.0	100
19-Jul	2.2	4.9	19.7	3.8	20.0	17.6	11.1	7.9	7.1	3.2	1.2	1.3	100
20-Jul	4.2	5.1	18.0	3.7	13.4	10.4	13.5	9.4	9.5	7.0	2.1	3.7	100
21-Jul	0.9	15.1	26.2	3.5	18.9	10.2	12.4	6.0	3.6	1.0	0.5	1.7	100
22-Jul	0.8	36.3	39.8	4.2	9.7	3.1	3.1	1.3	0.8	0.3	0.1	0.5	100
23-Jul	1.2	32.3	34.2	5.0	13.1	4.1	3.3	2.0	1.3	0.7	0.2	2.6	100
24-Jul	1.1	21.2	29.2	4.6	18.5	8.1	8.2	4.3	2.7	1.3	0.4	0.5	100
25-Jul	0.5	25.7	30.3	4.8	17.6	6.8	6.8	3.4	2.2	0.8	0.5	0.5	100
26-Jul	1.4	33.0	33.0	4.2	13.1	5.5	5.5	1.9	1.2	0.5	0.2	0.2	100
27-Jul	1.0	28.9	44.0	4.5	6.9	3.8	3.1	2.3	2.2	1.7	0.8	0.6	100
28-Jul	0.7	8.7	61.6	16.5	4.4	2.5	2.1	1.0	0.8	0.8	0.7	0.3	100
29-Jul	0.8	9.4	58.2	15.6	5.3	2.9	2.4	1.0	1.4	1.1	1.3	0.7	100
30-Jul	1.0	9.2	57.1	15.7	6.7	2.8	2.3	0.9	0.8	1.4	1.4	0.7	100
31-Jul	1.8	9.5	47.8	13.2	8.8	5.4	4.0	1.8	1.7	2.0	2.7	1.3	100
1-Aug	1.7	8.1	49.2	13.6	8.0	5.0	4.0	1.8	2.4	2.2	2.1	1.8	100
2-Aug	1.3	7.6	49.6	13.7	8.2	4.8	4.2	2.5	2.1	2.4	2.1	1.6	100
3-Aug	1.1	11.5	57.3	14.9	4.3	2.2	2.1	1.5	1.0	1.7	1.6	0.8	100
4-Aug	0.6	4.4	42.4	31.2	7.7	4.0	4.3	1.8	1.2	0.7	0.7	0.9	100
5-Aug	1.0	8.7	51.0	20.2	6.4	3.0	4.2	1.5	1.4	1.0	1.0	0.6	100
6-Aug	2.1	9.7	45.8	16.8	7.1	3.9	3.8	1.9	2.9	2.6	2.5	1.0	100
7-Aug	0.9	6.6	32.9	19.1	10.4	7.3	8.5	4.7	4.2	2.4	2.0	1.1	100
8-Aug	1.2	6.8	33.0	17.2	10.5	6.8	8.2	4.0	3.9	3.7	3.1	1.7	100
9-Aug	0.7	2.9	35.5	28.5	12.8	5.9	7.6	2.4	1.3	0.8	0.9	0.6	100
10-Aug	0.3	1.5	30.1	27.9	13.6	7.1	11.4	3.8	2.3	0.7	0.7	0.6	100
11-Aug	0.9	11.4	34.6	21.3	12.1	5.8	6.7	3.0	1.8	1.1	0.8	0.5	100
12-Aug	0.7	18.7	46.2	20.1	5.5	2.2	2.8	0.9	0.8	1.1	0.6	0.2	100
13-Aug	0.6	13.2	37.0	18.8	9.0	4.5	6.2	2.3	2.4	3.3	2.0	0.8	100
14-Aug	0.9	11.3	34.3	18.3	10.1	4.6	5.3	2.9	2.9	4.2	3.6	1.5	100
15-Aug	1.4	6.7	31.8	22.2	13.1	7.1	7.1	2.7	3.0	2.4	1.5	0.9	100
16-Aug	0.5	2.5	21.6	24.2	16.6	9.6	12.6	4.7	2.9	1.2	1.6	1.9	100
17-Aug	1.1	10.9	42.7	25.4	9.8	3.4	3.9	1.2	0.5	0.2	0.3	0.5	100
18-Aug	1.4	12.8	43.6	22.7	13.5	2.2	2.2	0.7	0.2	0.1	0.2	0.4	100
Percentage of Daily Total	0.9	14.1	42.8	14.2	10.2	5.0	5.4	2.5	1.8	1.2	0.9	0.9	100

**Appendix A11.**—Minimum and maximum daily counting ranges for both banks of the Kenai river and range from transducer where at least 80% of the migration occurred in 2004.

Date	North Bank					South Bank				
	Counting Range		Average Sector	Range where > 80% of Migration Occurred	Sectors where > 80% of Migration Occurred	Counting Range		Average Sector	Range where > 80% of Migration Occurred	Sectors where > 80% of Migration Occurred
	(ft)	(m)	(m)	(m)		(ft)	(m)	(m)	(m)	
1-Jul	65	19.8	1.7	16.5	1 - 10	23	7.0	0.6	6.4	1 - 11
2-Jul	65	19.8	1.7	16.5	1 - 10	23	7.0	0.6	5.3	1 - 9
2-Jul						20	6.1	0.5	4.6	1 - 9
3-Jul	65	19.8	1.7	16.5	1 - 10	20	6.1	0.5	4.1	1 - 8
4-Jul	65	19.8	1.7	18.2	1 - 11	20	6.1	0.5	3.6	1 - 7
4-Jul						22	6.7	0.6	3.9	1 - 7
5-Jul	65	19.8	1.7	18.2	1 - 11	22	6.7	0.6	3.9	1 - 7
5-Jul						23	7.0	0.6	4.1	1 - 7
6-Jul	65	19.8	1.7	18.2	1 - 11	22	6.7	0.6	3.9	1 - 7
7-Jul	65	19.8	1.7	18.2	1 - 11	22	6.7	0.6	3.9	1 - 7
8-Jul	65	19.8	1.7	16.5	1 - 10	22	6.7	0.6	3.9	1 - 7
8-Jul	72	21.9	1.8	18.3	1 - 10	20	6.1	0.5	3.6	1 - 7
9-Jul	68	20.7	1.7	17.3	1 - 10	20	6.1	0.5	4.1	1 - 8
10-Jul	68	20.7	1.7	19.0	1 - 11	20	6.1	0.5	4.6	1 - 9
10-Jul	65	19.8	1.7	18.2	1 - 11					
11-Jul	65	19.8	1.7	18.2	1 - 11	20	6.1	0.5	4.6	1 - 9
12-Jul	65	19.8	1.7	18.2	1 - 11	20	6.1	0.5	4.6	1 - 9
13-Jul	65	19.8	1.7	16.5	1 - 10	20	6.1	0.5	4.1	1 - 8
13-Jul	70	21.3	1.8	17.8	1 - 10					
14-Jul	66	20.1	1.7	6.7	1 - 4	20	6.1	0.5	2.5	1 - 5
14-Jul	30	9.1	0.8	3.0	1 - 4					
15-Jul	35	10.7	0.9	3.6	1 - 4	20	6.1	0.5	2.0	1 - 4
15-Jul	45	13.7	1.1	4.6	1 - 4					
16-Jul	35	10.7	0.9	3.6	1 - 4	20	6.1	0.5	2.5	1 - 5
16-Jul	40	12.2	1.0	4.1	1 - 4					
17-Jul	40	12.2	1.0	4.1	1 - 4	20	6.1	0.5	3.0	1 - 6
17-Jul	50	15.2	1.3	5.1	1 - 4					
18-Jul	40	12.2	1.0	5.1	1 - 5	20	6.1	0.5	3.6	1 - 7
18-Jul	65	19.8	1.7	8.3	1 - 5					
19-Jul	65	19.8	1.7	16.5	1 - 10	20	6.1	0.5	4.1	1 - 8
20-Jul	65	19.8	1.7	16.5	1 - 10	20	6.1	0.5	4.6	1 - 9
20-Jul	65	19.8	1.7	16.5	1 - 10					
21-Jul	70	21.3	1.8	8.9	1 - 5	20	6.1	0.5	3.6	1 - 7
21-Jul						19	5.8	0.5	3.4	1 - 7
22-Jul	70	21.3	1.8	5.3	1 - 3	9	4.7	0.4	1.6	1 - 4
22-Jul	50	15.2	1.3	3.8	1 - 3					
23-Jul	56	17.1	1.4	7.1	1 - 5	19	5.8	0.5	2.4	1 - 5
23-Jul	65	19.8	1.7	8.3	1 - 5					
24-Jul	65	19.8	1.7	11.6	1 - 7	19	5.8	0.5	2.9	1 - 6
25-Jul	65	19.8	1.7	6.6	1 - 4	19	5.8	0.5	2.9	1 - 6
25-Jul	60	18.3	1.5	6.1	1 - 4					
26-Jul	60	18.3	1.5	6.1	1 - 4	19	5.8	0.5	2.4	1 - 5
26-Jul	40	12.2	1.0	4.1	1 - 4					
27-Jul	60	18.3	1.5	4.6	1 - 3	19	5.8	0.5	2.4	1 - 5

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Date	North Bank					South Bank				
	Counting Range		Average Sector	Range where > 80% of Migration	Sectors where > 80% of Migration	Counting Range		Average Sector	Range where > 80% of Migration	Sectors where > 80% of Migration
	(ft)	(m)	(m)	Occurred (m)	Occurred	(ft)	(m)	(m)	Occurred (m)	Occurred
27-Jul						15	4.6	0.4	1.9	1 - 5
28-Jul	60	18.3	1.5	4.6	1 - 3	18	5.5	0.5	1.8	1 - 4
28-Jul	56	17.1	1.4	4.3	1 - 3					
29-Jul	56	17.1	1.4	4.3	1 - 3	18	5.5	0.5	1.8	1 - 4
30-Jul	56	17.1	1.4	5.7	1 - 4	18	5.5	0.5	1.8	1 - 4
30-Jul	42	12.8	1.1	4.3	1 - 4					
31-Jul	42	12.8	1.1	4.3	1 - 4	18	5.5	0.5	2.3	1 - 5
31-Jul	55	16.8	1.4	5.6	1 - 4					
1-Aug	55	16.8	1.4	5.6	1 - 4	18	5.5	0.5	2.3	1 - 5
1-Aug	42	12.8	1.1	4.3	1 - 4					
2-Aug	42	12.8	1.1	4.3	1 - 4	18	5.5	0.5	2.3	1 - 5
2-Aug	42	12.8	1.1	4.3	1 - 4					
3-Aug	42	12.8	1.1	4.3	1 - 4	18	5.5	0.5	1.8	1 - 4
4-Aug	42	12.8	1.1	3.2	1 - 3	18	5.5	0.5	2.3	1 - 5
4-Aug						14	4.3	0.4	1.8	1 - 5
5-Aug	42	12.8	1.1	3.2	1 - 3	18	5.5	0.5	1.8	1 - 4
5-Aug	45	13.7	1.1	3.4	1 - 3					
6-Aug	45	13.7	1.1	3.4	1 - 3	18	5.5	0.5	2.3	1 - 5
6-Aug	46	14.0	1.2	3.5	1 - 3					
7-Aug	46	14.0	1.2	5.8	1 - 5	18	5.5	0.5	3.2	1 - 7
7-Aug						14	4.3	0.4	0.0	1 -
8-Aug	46	14.0	1.2	8.2	1 - 7	18	5.5	0.5	3.2	1 - 7
9-Aug	46	14.0	1.2	3.5	1 - 3	18	5.5	0.5	2.3	1 - 5
9-Aug	55	16.8	1.4	4.2	1 - 3	14	4.3	0.4	0.0	1 -
10-Aug	46	14.0	1.2	4.7	1 - 4	14	4.3	0.4	2.1	1 - 6
10-Aug	48	14.6	1.2	4.9	1 - 4					
11-Aug	46	14.0	1.2	5.8	1 - 5	14	4.3	0.4	1.8	1 - 5
11-Aug	42	12.8	1.1	5.3	1 - 5	18	5.5	0.5	0.0	1 -
12-Aug	42	12.8	1.1	5.3	1 - 5	18	5.5	0.5	1.8	1 - 4
13-Aug	42	12.8	1.1	6.4	1 - 6	18	5.5	0.5	2.7	1 - 6
13-Aug	37	11.3	0.9	5.6	1 - 6					
14-Aug	37	11.3	0.9	5.6	1 - 6	18	5.5	0.5	3.2	1 - 7
15-Aug	37	11.3	0.9	4.7	1 - 5	18	5.5	0.5	2.7	1 - 6
15-Aug						15	4.6	0.4	0.0	1 -
16-Aug	37	11.3	0.9	4.7	1 - 5	15	4.6	0.4	2.7	1 - 7
17-Aug	37	11.3	0.9	3.8	1 - 4	15	4.6	0.4	1.5	1 - 4
18-Aug	37	11.3	0.9	3.8	1 - 4	15	4.6	0.4	1.5	1 - 4
Average	16.1	1.3	8.3			Average	5.7	0.5	2.8	



## **APPENDIX B. KASILOF RIVER**

**Appendix B1.**—Estimated salmon escapement adjacent to the north bank of the Kasilof River, 15 June through 16, August 2004.

Date	Sockeye		Pink		Coho		Chinook	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
15-Jun	2,616	2,616	0	0	0	0	0	0
16-Jun	834	3,450	0	0	0	0	0	0
17-Jun	715	4,165	0	0	0	0	0	0
18-Jun	1,526	5,691	0	0	0	0	0	0
19-Jun	1,663	7,354	0	0	0	0	0	0
20-Jun	3,457	10,811	0	0	0	0	0	0
21-Jun	4,997	15,808	0	0	0	0	0	0
22-Jun	12,894	28,702	0	0	0	0	0	0
23-Jun	13,337	42,039	0	0	0	0	0	0
24-Jun	9,307	51,346	0	0	0	0	0	0
25-Jun	10,446	61,792	0	0	0	0	0	0
26-Jun	645	62,437	0	0	0	0	0	0
27-Jun	893	63,330	0	0	0	0	0	0
28-Jun	1,924	65,254	0	0	0	0	0	0
29-Jun	2,408	67,662	0	0	0	0	0	0
30-Jun	930	68,592	0	0	0	0	0	0
1-Jul	178	68,770	0	0	0	0	0	0
2-Jul	241	69,011	0	0	0	0	0	0
3-Jul	442	69,453	0	0	0	0	0	0
4-Jul	800	70,253	0	0	0	0	0	0
5-Jul	424	70,677	0	0	0	0	0	0
6-Jul	1,301	71,978	0	0	0	0	0	0
7-Jul	3,930	75,908	0	0	0	0	0	0
8-Jul	2,759	78,667	0	0	0	0	0	0
9-Jul	589	79,256	0	0	0	0	0	0
10-Jul	392	79,648	0	0	0	0	0	0
11-Jul	390	80,038	0	0	0	0	0	0
12-Jul	1,328	81,366	0	0	0	0	0	0
13-Jul	14,379	95,745	0	0	0	0	0	0
14-Jul	41,109	136,854	0	0	0	0	0	0
15-Jul	15,657	152,511	0	0	0	0	0	0
16-Jul	6,583	159,094	0	0	0	0	0	0
17-Jul	4,748	163,842	0	0	0	0	0	0
18-Jul	4,023	167,865	0	0	0	0	0	0
19-Jul	2,488	170,353	0	0	0	0	0	0
20-Jul	2,031	172,384	0	0	0	0	0	0
21-Jul	10,233	182,617	0	0	0	0	0	0
22-Jul	4,342	186,959	0	0	0	0	0	0
23-Jul	4,628	191,587	0	0	0	0	0	0
24-Jul	3,990	195,577	0	0	0	0	0	0
25-Jul	3,643	199,220	0	0	0	0	0	0
26-Jul	3,132	202,352	0	0	0	0	0	0
27-Jul	2,001	204,353	0	0	0	0	0	0

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**Appendix B1.**–Page 2 of 2.

<b>Date</b>	<b>Sockeye</b>		<b>Pink</b>		<b>Coho</b>		<b>Chinook</b>	
	<b>Daily</b>	<b>Cumulative</b>	<b>Daily</b>	<b>Cumulative</b>	<b>Daily</b>	<b>Cumulative</b>	<b>Daily</b>	<b>Cumulative</b>
28-Jul	2,407	206,760	0	0	0	0	0	0
29-Jul	1,795	208,555	0	0	0	0	0	0
30-Jul	2,033	210,588	0	0	0	0	0	0
31-Jul	1,220	211,808	0	0	0	0	0	0
1-Aug	1,096	212,904	0	0	0	0	0	0
2-Aug	1,454	214,358	0	0	0	0	0	0
3-Aug	2,447	216,805	0	0	0	0	0	0
4-Aug	3,265	220,070	0	0	0	0	0	0
5-Aug	2,531	222,601	0	0	0	0	0	0
6-Aug	1,787	224,388	0	0	0	0	0	0
7-Aug	1,817	226,205	0	0	0	0	0	0
8-Aug	1,956	228,161	0	0	0	0	0	0
9-Aug	4,732	232,893	0	0	0	0	0	0
10-Aug	2,723	235,616	0	0	0	0	0	0
11-Aug	2,104	237,720	0	0	0	0	0	0
12-Aug	2,121	239,841	0	0	0	0	0	0
13-Aug	2,149	241,990	0	0	0	0	0	0
14-Aug	2,540	244,530	0	0	0	0	0	0
15-Aug	2,054	246,584	0	0	0	0	0	0
16-Aug	1,544	248,128	0	0	0	0	0	0

**Appendix B2.**—Estimated salmon escapement adjacent to the south bank of the Kasilof River, 15 June through 16 August 2004.

Date	Sockeye		Pink		Coho		Chinook	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
15-Jun	1,560	1,560	0	0	0	0	0	0
16-Jun	1,003	2,563	0	0	0	0	0	0
17-Jun	631	3,194	0	0	0	0	0	0
18-Jun	1,124	4,318	0	0	0	0	0	0
19-Jun	1,192	5,510	0	0	0	0	0	0
20-Jun	3,055	8,565	0	0	0	0	0	0
21-Jun	6,136	14,701	0	0	0	0	0	0
22-Jun	9,904	24,605	0	0	0	0	0	0
23-Jun	13,206	37,811	0	0	0	0	0	0
24-Jun	18,747	56,558	0	0	0	0	0	0
25-Jun	9,824	66,382	0	0	0	0	0	0
26-Jun	447	66,829	0	0	0	0	0	0
27-Jun	631	67,460	0	0	0	0	0	0
28-Jun	1,017	68,477	0	0	0	0	0	0
29-Jun	2,109	70,586	0	0	0	0	0	0
30-Jun	3,706	74,292	0	0	0	0	0	0
1-Jul	1,075	75,367	0	0	0	0	0	0
2-Jul	1,483	76,850	0	0	0	0	0	0
3-Jul	2,322	79,172	0	0	0	0	0	0
4-Jul	3,539	82,711	0	0	0	0	0	0
5-Jul	1,307	84,018	0	0	0	0	0	0
6-Jul	2,187	86,205	0	0	0	0	0	0
7-Jul	4,867	91,072	0	0	0	0	0	0
8-Jul	2,907	93,979	0	0	0	0	0	0
9-Jul	967	94,946	0	0	0	0	0	0
10-Jul	1,377	96,323	0	0	0	0	0	0
11-Jul	1,185	97,508	0	0	0	0	0	0
12-Jul	2,625	100,133	0	0	0	0	0	0
13-Jul	22,069	122,202	0	0	0	0	0	0
14-Jul	51,623	173,825	0	0	0	0	0	0
15-Jul	22,040	195,865	0	0	0	0	0	0
16-Jul	10,995	206,860	0	0	0	0	0	0
17-Jul	6,180	213,040	0	0	0	0	0	0
18-Jul	3,860	216,900	0	0	0	0	0	0
19-Jul	3,061	219,961	0	0	0	0	0	0
20-Jul	2,440	222,401	0	0	0	0	0	0
21-Jul	5,901	228,302	0	0	0	0	0	0
22-Jul	3,116	231,418	0	0	0	0	0	0
23-Jul	4,879	236,297	0	0	0	0	0	0
24-Jul	4,367	240,664	0	0	0	0	0	0
25-Jul	4,107	244,771	0	0	0	0	0	0
26-Jul	3,366	248,137	0	0	0	0	0	0
27-Jul	2,745	250,882	0	0	0	0	0	0
28-Jul	3,662	254,544	0	0	0	0	0	0

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Date	Sockeye		Pink		Coho		Chinook	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
29-Jul	2,815	257,359	0	0	0	0	0	0
30-Jul	2,674	260,033	0	0	0	0	0	0
31-Jul	2,685	262,718	0	0	0	0	0	0
1-Aug	1,830	264,548	0	0	0	0	0	0
2-Aug	2,391	266,939	0	0	0	0	0	0
3-Aug	3,445	270,384	0	0	0	0	0	0
4-Aug	8,458	278,842	0	0	0	0	0	0
5-Aug	5,154	283,996	0	0	0	0	0	0
6-Aug	4,137	288,133	0	0	0	0	0	0
7-Aug	3,518	291,651	0	0	0	0	0	0
8-Aug	3,362	295,013	0	0	0	0	0	0
9-Aug	5,050	300,063	0	0	0	0	0	0
10-Aug	4,208	304,271	0	0	0	0	0	0
11-Aug	4,336	308,607	0	0	0	0	0	0
12-Aug	4,067	312,674	0	0	0	0	0	0
13-Aug	5,303	317,977	0	0	0	0	0	0
14-Aug	4,594	322,571	0	0	0	0	0	0
15-Aug	3,917	326,488	0	0	0	0	0	0
16-Aug	2,965	329,453	0	0	0	0	0	0

Appendix B3.—Kasilof River, north bank sonar counts by hour, 15 June through 16 August, 2004.

Date	Counts by Hour																								Daily Total	Cum Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
06/15	90	82	76	78	92	69	70	78	46	66	42	43	78	126	83	218	294	256	359	136	39	58	81	56	2,616	2,616
06/16	42	44	30	41	48	91	57	33	41	19	26	18	15	18	23	43	14	11	33	56	43	35	35	18	834	3,450
06/17	27	29	25	19	17	36	47	23	41	39	32	37	6	8	27	9	54	16	34	48	38	41	21	41	715	4,165
06/18	26	15	23	26	42	150	185	106	43	73	72	57	43	12	9	12	13	19	18	134	122	87	88	151	1,526	5,691
06/19	98	38	53	35	32	30	75	78	43	60	17	31	31	41	20	17	24	33	56	83	254	114	129	271	1,663	7,354
06/20	259	111	82	63	76	108	288	276	279	55	73	93	126	132	105	19	29	54	111	182	441	202	155	138	3,457	10,811
06/21	37	85	66	36	53	127	131	420	940	250	212	212	115	136	60	68	57	87	177	446	383	366	297	236	4,997	15,808
06/22	158	259	147	111	163	234	808	1,024	1,500	1,340	593	618	629	1,013	476	493	392	286	306	355	353	1,051	307	278	12,894	28,702
06/23	270	236	219	442	515	505	1,027	855	676	948	1,339	847	523	708	378	208	277	717	403	582	200	498	515	449	13,337	42,039
06/24	312	245	450	341	194	253	540	876	1,014	146	184	173	573	595	453	512	224	112	244	556	317	434	261	298	9,307	51,346
06/25	284	235	363	605	1,223	1,433	1,175	679	545	229	243	1,184	852	344	262	114	155	147	78	78	62	69	55	32	10,446	61,792
06/26	37	51	41	38	38	47	52	53	24	16	43	12	10	8	19	12	28	22	12	22	13	11	20	16	645	62,437
06/27	9	14	18	15	57	26	19	11	18	35	12	19	15	28	88	31	100	54	50	43	32	72	24	103	893	63,330
06/28	70	19	26	37	50	95	128	117	143	31	26	101	108	34	141	161	285	142	76	27	39	16	32	20	1,924	65,254
06/29	70	27	21	29	39	26	27	74	82	140	102	102	558	152	90	80	215	168	84	38	66	72	102	44	2,408	67,662
06/30	48	39	45	39	57	51	25	25	30	32	59	54	56	67	68	58	26	45	34	21	22	13	3	13	930	68,592
07/01	6	7	3	4	6	6	2	8	2	8	5	11	12	3	2	6	9	5	15	10	7	19	6	16	178	68,770
07/02	8	8	1	8	3	2	2	12	8	6	30	16	15	7	7	8	8	9	11	13	17	15	12	15	241	69,011
07/03	14	5	7	5	7	8	34	45	20	44	26	18	18	14	16	10	7	11	12	58	20	7	12	24	442	69,453
07/04	20	14	15	14	15	37	225	114	37	31	12	22	21	62	13	13	42	7	15	14	26	9	11	11	800	70,253
07/05	20	9	11	4	4	5	1	4	11	6	7	32	13	11	23	12	18	12	19	10	26	86	53	27	424	70,677
07/06	17	20	12	11	15	9	10	13	65	77	32	14	59	81	49	47	36	38	59	86	75	169	196	111	1,301	71,978
07/07	86	88	89	75	66	79	82	143	184	372	394	151	153	206	181	156	80	71	118	189	154	221	403	189	3,930	75,908
07/08	91	75	105	119	139	165	168	164	176	173	254	312	214	129	80	80	77	57	26	37	35	21	46	16	2,759	78,667
07/09	19	25	9	7	2	8	8	7	12	14	12	5	17	28	14	15	34	25	28	207	20	22	25	26	589	79,256
07/10	28	39	19	19	20	22	14	12	15	32	7	12	22	19	16	8	10	13	13	11	11	17	8	5	392	79,648
07/11	7	8	16	16	33	21	22	9	9	7	11	4	8	12	7	10	14	32	48	52	16	12	6	10	390	80,038
07/12	28	27	53	17	23	20	24	16	24	23	37	26	25	15	23	60	111	187	173	157	103	64	41	51	1,328	81,366
07/13	46	5	16	7	23	28	60	81	73	65	103	84	123	186	173	372	804	1,287	1,817	2,123	1,825	1,857	1,918	1,303	14,379	95,745
07/14	615	362	443	958	1,851	3,044	3,028	2,778	1,623	1,162	1,180	1,205	1,274	1,767	2,000	2,146	2,006	2,402	2,340	2,281	2,139	2,303	1,423	779	41,109	136,854
07/15	151	98	59	88	600	1,915	2,155	1,975	1,239	903	656	611	492	519	418	452	380	372	571	661	462	436	291	153	15,657	152,511
07/16	43	7	11	11	17	72	112	212	157	256	273	309	305	327	456	471	453	539	704	776	454	315	190	113	6,583	159,094
07/17	30	14	10	9	9	27	108	343	457	365	250	335	175	314	267	255	189	176	220	393	377	216	127	82	4,748	163,842
07/18	53	47	23	14	28	75	140	399	288	219	182	132	156	126	199	208	202	146	157	234	482	274	150	89	4,023	167,865
07/19	37	20	16	13	32	42	70	85	191	150	89	70	176	159	96	151	219	201	191	91	132	135	57	65	2,488	170,353
07/20	26	16	9	47	17	25	38	31	124	111	134	51	91	129	127	106	83	86	50	56	136	265	166	107	2,031	172,384
07/21	66	47	41	46	85	146	163	428	808	677	613	581	783	711	590	419	492	513	529	680	621	762	334	98	10,233	182,617
07/22	50	49	35	41	59	106	179	109	155	438	511	335	240	160	288	176	230	124	115	184	189	148	264	157	4,342	186,959
07/23	40	28	18	22	54	175	149	145	123	348	453	428	341	298	240	213	161	208	142	251	254	210	208	119	4,628	191,587
07/24	61	38	7	9	24	59	105	92	98	70	117	247	323	466	308	389	275	217	179	181	244	183	163	135	3,990	195,577

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Date	Counts by Hour																								Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Total
07/25	49	19	25	13	20	123	162	136	176	149	163	89	203	300	285	234	261	266	236	198	184	206	118	28	3,643	199,220
07/26	18	12	3	8	25	61	97	96	167	135	83	69	108	186	275	430	312	239	292	188	137	113	54	24	3,132	202,352
07/27	10	10	4	10	13	31	75	102	90	65	63	141	150	126	128	116	179	181	131	111	100	80	66	19	2,001	204,353
07/28	12	12	9	10	31	70	143	146	77	71	122	148	107	178	171	101	101	101	101	214	211	170	71	30	2,407	206,760
07/29	14	31	3	7	24	58	97	136	100	44	101	91	111	69	70	89	66	120	136	132	96	80	81	39	1,795	208,555
07/30	23	5	3	5	15	80	120	82	130	130	88	112	68	66	59	122	140	85	119	199	108	116	111	47	2,033	210,588
07/31	3	4	0	2	6	41	82	53	91	43	65	46	45	42	52	41	46	51	93	117	70	81	86	60	1,220	211,808
08/01	19	7	4	7	10	26	75	108	105	79	51	44	33	49	44	29	30	59	21	52	70	85	50	39	1,096	212,904
08/02	16	11	8	10	20	29	50	141	154	77	54	75	85	92	68	47	23	33	73	107	113	71	63	34	1,454	214,358
08/03	26	17	14	13	13	23	58	118	231	167	160	131	204	166	115	122	90	97	121	130	198	122	66	45	2,447	216,805
08/04	11	14	13	13	21	94	116	104	255	260	224	204	261	308	207	232	167	177	134	81	140	137	86	6	3,265	220,070
08/05	3	3	4	4	5	32	116	83	107	133	210	231	153	179	140	201	140	171	140	132	137	105	69	33	2,531	222,601
08/06	5	2	1	1	1	18	62	110	75	71	72	123	106	62	157	138	145	128	109	149	112	70	57	13	1,787	224,388
08/07	6	1	2	6	8	50	133	149	112	74	44	85	112	106	101	107	143	136	136	130	69	63	38	6	1,817	226,205
08/08	4	1	1	2	7	49	76	83	70	71	52	110	93	120	88	71	150	88	140	108	134	234	180	24	1,956	228,161
08/09	3	207	226	724	433	211	167	239	229	346	175	113	168	139	182	191	184	154	155	137	133	105	89	22	4,732	232,893
08/10	6	14	4	15	21	56	142	148	163	107	124	95	83	100	151	162	394	142	145	175	160	195	105	16	2,723	235,616
08/11	8	7	3	10	26	49	175	174	164	162	99	102	84	71	86	116	105	90	138	136	119	93	32	55	2,104	237,720
08/12	9	6	2	4	7	29	114	178	155	173	114	104	78	84	80	104	105	125	168	198	89	111	59	25	2,121	239,841
08/13	6	2	0	2	4	37	118	149	143	138	113	91	91	119	109	80	122	101	156	119	171	111	87	80	2,149	241,990
08/14	13	45	8	6	12	29	120	193	200	173	153	116	142	127	80	138	189	110	76	107	146	161	117	79	2,540	244,530
08/15	21	4	7	2	16	55	148	195	189	145	135	101	88	101	106	95	91	74	97	76	136	90	67	15	2,054	246,584
08/16	7	7	1	2	4	46	114	121	107	99	92	125	64	65	79	60	78	73	78	66	67	85	89	15	1,544	248,128
Total	3,691	3,026	3,058	4,395	6,570	10,674	14,113	14,997	14,654	11,948	11,020	11,158	11,431	12,026	10,728	10,864	11,388	11,708	12,622	14,624	13,149	13,589	10,076	6,619	248,128	

**Appendix B4.**–Kasilof River, south bank sonar counts by hour, 15 June through 16 August, 2004.

Date	Counts by Hour																								Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Total
06/15	126	127	159	114	78	128	34	81	39	19	15	15	34	41	50	97	46	60	82	51	60	22	33	49	1,560	1,560
06/16	38	59	34	50	69	47	21	44	37	22	46	48	54	32	22	35	36	30	25	82	61	42	34	35	1,003	2,563
06/17	33	43	49	34	39	45	25	25	16	9	22	22	63	13	5	3	16	13	12	25	32	15	25	47	631	3,194
06/18	43	22	36	34	34	93	197	106	49	73	50	36	31	13	26	7	14	12	16	74	32	36	44	46	1,124	4,318
06/19	50	53	68	49	36	63	128	142	56	3	31	13	39	20	32	18	24	16	31	36	65	64	63	92	1,192	5,510
06/20	113	153	92	53	74	83	229	346	147	139	59	101	127	69	71	76	66	64	6	38	166	156	251	376	3,055	8,565
06/21	313	202	164	153	262	233	256	599	228	356	527	357	183	117	56	102	69	91	65	76	233	681	575	238	6,136	14,701
06/22	627	388	509	482	364	392	263	397	425	425	159	109	142	370	451	309	198	303	283	435	325	532	1,062	954	9,904	24,605
06/23	683	779	717	558	512	580	580	580	596	1,402	327	558	334	265	189	219	246	316	565	313	446	717	808	916	13,206	37,811
06/24	855	765	790	774	319	703	1,164	867	1,018	1,098	1,748	1,255	782	477	414	282	357	264	500	105	469	843	1,154	1,744	18,747	56,558
06/25	599	425	425	548	1,068	749	1,131	522	528	503	479	449	443	228	147	178	134	91	132	138	425	425	44	13	9,824	66,382
06/26	18	18	56	18	18	18	18	18	18	18	21	20	8	18	36	38	10	3	1	4	13	32	14	11	447	66,829
06/27	26	7	21	25	22	20	65	39	46	46	34	92	14	8	26	12	2	5	5	1	24	39	31	21	631	67,460
06/28	29	13	23	16	113	85	65	45	74	33	31	15	12	80	20	46	97	69	25	31	19	21	28	27	1,017	68,477
06/29	157	45	41	54	27	35	31	25	23	21	21	32	22	141	52	245	290	240	8	61	180	152	133	73	2,109	70,586
06/30	183	144	145	401	470	352	101	168	143	51	136	171	279	110	82	40	39	90	36	55	141	152	130	87	3,706	74,292
07/01	102	64	37	33	38	52	39	14	21	59	47	73	44	64	51	44	15	38	48	88	23	42	19	20	1,075	75,367
07/02	27	19	17	9	14	103	170	108	51	36	155	40	20	18	47	40	24	45	36	116	83	152	71	82	1,483	76,850
07/03	59	11	35	22	13	85	204	169	60	175	243	73	208	67	32	36	37	107	93	146	131	70	70	176	2,322	79,172
07/04	194	61	107	138	201	143	576	454	52	66	194	85	128	146	72	46	98	140	161	81	109	141	38	108	3,539	82,711
07/05	33	79	72	77	59	56	44	50	23	45	53	36	51	41	37	34	13	12	32	49	37	201	108	65	1,307	84,018
07/06	84	92	65	62	70	115	61	133	183	166	34	68	75	31	21	48	53	63	69	40	83	148	309	114	2,187	86,205
07/07	104	60	94	62	131	147	208	156	134	404	416	396	185	219	86	105	105	253	305	261	209	176	393	258	4,867	91,072
07/08	33	50	131	163	222	171	161	222	296	229	167	268	151	46	73	44	53	61	68	44	29	50	65	110	2,907	93,979
07/09	86	73	26	54	87	55	55	22	11	35	42	12	13	34	31	22	28	21	15	67	35	43	26	74	967	94,946
07/10	83	130	128	105	103	92	139	134	77	50	22	66	21	17	18	20	32	15	13	18	26	15	29	24	1,377	96,323
07/11	30	23	24	25	45	55	41	51	20	61	55	18	32	8	10	27	68	91	67	68	79	57	173	57	1,185	97,508
07/12	59	97	85	74	96	58	86	104	63	165	94	116	72	80	48	66	137	299	315	186	93	87	69	76	2,625	100,133
07/13	61	52	69	68	133	166	196	150	63	143	92	75	66	133	129	263	552	1,546	2,109	2,936	3,435	3,376	3,286	2,970	22,069	122,202
07/14	1,656	1,467	1,455	2,857	3,846	4,333	4,376	3,204	1,954	1,762	1,707	1,597	1,673	1,678	1,172	1,575	1,760	2,846	2,629	1,931	1,785	2,136	1,414	810	51,623	173,825

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Date	Counts by Hour																								Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Total
07/15	213	435	325	527	1,811	2,599	2,893	2,397	1,488	839	737	709	687	601	421	573	663	832	871	669	517	447	550	236	22,040	195,865
07/16	130	97	62	68	58	146	191	392	504	1,158	967	365	648	529	855	765	768	640	832	731	368	206	238	277	10,995	206,860
07/17	126	101	97	39	45	78	275	628	807	557	370	437	368	205	198	252	165	157	174	287	428	158	119	109	6,180	213,040
07/18	93	85	63	53	42	80	151	269	434	291	211	197	176	130	57	100	180	110	143	190	303	197	144	161	3,860	216,900
07/19	164	160	121	61	78	84	133	108	181	197	230	202	187	133	111	128	84	75	76	109	71	80	190	98	3,061	219,961
07/20	106	64	65	42	43	58	75	76	166	185	115	112	173	96	112	97	85	118	84	90	70	201	93	114	2,440	222,401
07/21	164	217	133	123	146	149	170	240	506	685	318	189	326	235	208	258	346	209	262	219	184	229	236	149	5,901	228,302
07/22	112	161	122	120	125	161	152	102	81	169	247	261	169	159	176	132	92	80	60	44	39	55	123	174	3,116	231,418
07/23	140	126	105	79	92	77	168	230	174	203	374	622	598	280	317	230	222	136	80	116	141	85	122	162	4,879	236,297
07/24	173	82	70	67	108	101	107	123	82	112	121	279	287	333	370	288	173	221	233	182	242	164	200	249	4,367	240,664
07/25	165	121	107	81	84	201	199	135	110	116	140	158	351	253	478	352	232	160	197	141	113	85	45	83	4,107	244,771
07/26	64	72	50	56	54	75	78	127	88	128	104	160	126	210	328	270	189	290	239	192	147	106	108	105	3,366	248,137
07/27	54	79	72	74	109	111	164	146	108	119	108	136	114	129	140	171	148	159	121	131	107	117	78	50	2,745	250,882
07/28	31	61	59	81	97	179	239	212	171	154	139	189	120	93	92	83	139	341	304	230	246	181	151	70	3,662	254,544
07/29	42	33	49	34	81	95	155	144	145	126	134	184	108	54	91	69	138	142	201	214	213	200	96	67	2,815	257,359
07/30	42	45	20	27	28	101	145	122	153	111	114	102	51	33	31	94	120	90	155	233	181	234	279	163	2,674	260,033
07/31	76	61	37	41	27	82	159	190	199	146	175	169	77	66	63	45	56	65	123	156	136	207	183	146	2,685	262,718
08/01	88	82	41	25	49	91	120	128	133	72	145	77	30	27	29	47	58	44	34	75	122	106	94	113	1,830	264,548
08/02	79	51	44	30	44	61	129	153	201	157	144	109	177	138	79	55	50	57	68	87	144	177	65	92	2,391	266,939
08/03	121	79	73	49	40	100	84	73	211	297	256	261	378	176	144	138	69	90	104	105	150	181	149	117	3,445	270,384
08/04	207	190	128	121	168	270	396	301	379	653	680	488	428	570	504	357	466	357	428	215	241	373	417	121	8,458	278,842
08/05	110	87	50	42	88	104	272	278	155	165	394	385	406	254	255	400	353	230	243	254	203	141	147	138	5,154	283,996
08/06	75	55	36	75	35	140	291	306	168	125	119	198	153	155	163	253	218	305	352	312	237	196	118	52	4,137	288,133
08/07	40	22	26	32	47	105	245	218	219	165	203	191	205	145	162	182	183	268	253	167	142	124	118	56	3,518	291,651
08/08	51	40	33	37	53	121	242	211	180	80	142	84	143	80	98	223	188	203	153	265	231	259	150	95	3,362	295,013
08/09	99	47	64	88	116	265	284	269	331	305	260	270	205	235	274	318	311	299	314	268	137	96	120	75	5,050	300,063
08/10	147	126	59	54	65	143	423	311	229	215	212	173	138	120	100	180	174	230	206	254	185	209	155	100	4,208	304,271
08/11	172	64	51	37	60	153	272	283	376	299	229	192	181	140	135	185	165	216	185	223	261	167	173	117	4,336	308,607
08/12	81	35	27	28	35	82	199	332	304	278	204	180	194	168	169	280	158	178	138	190	288	211	226	82	4,067	312,674
08/13	86	39	56	22	70	128	270	404	354	287	297	240	259	172	164	171	326	275	351	417	320	245	214	136	5,303	317,977
08/14	117	75	50	49	47	134	215	421	347	349	339	171	186	150	119	110	197	183	197	176	233	327	235	167	4,594	322,571
08/15	125	50	49	32	23	85	252	313	368	213	200	276	156	142	104	160	174	129	200	140	146	188	181	211	3,917	326,488
08/16	56	78	47	43	36	142	201	199	191	158	163	154	115	65	63	161	173	106	156	200	135	118	141	64	2,965	329,453
Total	10,053	8,641	8,065	9,449	12,567	15,758	20,013	18,816	15,994	16,728	15,618	14,136	13,226	10,860	10,116	11,204	11,682	14,199	15,289	14,838	15,529	16,693	16,157	13,822	329,453	

**Appendix B5.**—Percentage of daily total Kasilof River north bank sonar counts by hour, 15 June through 16 August 2004.

Date	Counts by Hour																								Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
06/15	3.4	3.1	2.9	3.0	3.5	2.6	2.7	3.0	1.8	2.5	1.6	1.6	3.0	4.8	3.2	8.3	11.2	9.8	13.7	5.2	1.5	2.2	3.1	2.1	100
06/16	5.0	5.3	3.6	4.9	5.8	10.9	6.8	4.0	4.9	2.3	3.1	2.2	1.8	2.2	2.8	5.2	1.7	1.3	4.0	6.7	5.2	4.2	4.2	2.2	100
06/17	3.8	4.1	3.5	2.7	2.4	5.0	6.6	3.2	5.7	5.5	4.5	5.2	0.8	1.1	3.8	1.3	7.6	2.2	4.8	6.7	5.3	5.7	2.9	5.7	100
06/18	1.7	1.0	1.5	1.7	2.8	9.8	12.1	6.9	2.8	4.8	4.7	3.7	2.8	0.8	0.6	0.8	0.9	1.2	1.2	8.8	8.0	5.7	5.8	9.9	100
06/19	5.9	2.3	3.2	2.1	1.9	1.8	4.5	4.7	2.6	3.6	1.0	1.9	1.9	2.5	1.2	1.0	1.4	2.0	3.4	5.0	15.3	6.9	7.8	16.3	100
06/20	7.5	3.2	2.4	1.8	2.2	3.1	8.3	8.0	8.1	1.6	2.1	2.7	3.6	3.8	3.0	0.5	0.8	1.6	3.2	5.3	12.8	5.8	4.5	4.0	100
06/21	0.7	1.7	1.3	0.7	1.1	2.5	2.6	8.4	18.8	5.0	4.2	4.2	2.3	2.7	1.2	1.4	1.1	1.7	3.5	8.9	7.7	7.3	5.9	4.7	100
06/22	1.2	2.0	1.1	0.9	1.3	1.8	6.3	7.9	11.6	10.4	4.6	4.8	4.9	7.9	3.7	3.8	3.0	2.2	2.4	2.8	2.7	8.2	2.4	2.2	100
06/23	2.0	1.8	1.6	3.3	3.9	3.8	7.7	6.4	5.1	7.1	10.0	6.4	3.9	5.3	2.8	1.6	2.1	5.4	3.0	4.4	1.5	3.7	3.9	3.4	100
06/24	3.4	2.6	4.8	3.7	2.1	2.7	5.8	9.4	10.9	1.6	2.0	1.9	6.2	6.4	4.9	5.5	2.4	1.2	2.6	6.0	3.4	4.7	2.8	3.2	100
06/25	2.7	2.2	3.5	5.8	11.7	13.7	11.2	6.5	5.2	2.2	2.3	11.3	8.2	3.3	2.5	1.1	1.5	1.4	0.7	0.7	0.6	0.7	0.5	0.3	100
06/26	5.7	7.9	6.4	5.9	5.9	7.3	8.1	8.2	3.7	2.5	6.7	1.9	1.6	1.2	2.9	1.9	4.3	3.4	1.9	3.4	2.0	1.7	3.1	2.5	100
06/27	1.0	1.6	2.0	1.7	6.4	2.9	2.1	1.2	2.0	3.9	1.3	2.1	1.7	3.1	9.9	3.5	11.2	6.0	5.6	4.8	3.6	8.1	2.7	11.5	100
06/28	3.6	1.0	1.4	1.9	2.6	4.9	6.7	6.1	7.4	1.6	1.4	5.2	5.6	1.8	7.3	8.4	14.8	7.4	4.0	1.4	2.0	0.8	1.7	1.0	100
06/29	2.9	1.1	0.9	1.2	1.6	1.1	1.1	3.1	3.4	5.8	4.2	4.2	23.2	6.3	3.7	3.3	8.9	7.0	3.5	1.6	2.7	3.0	4.2	1.8	100
06/30	5.2	4.2	4.8	4.2	6.1	5.5	2.7	2.7	3.2	3.4	6.3	5.8	6.0	7.2	7.3	6.2	2.8	4.8	3.7	2.3	2.4	1.4	0.3	1.4	100
07/01	3.4	3.9	1.7	2.2	3.4	3.4	1.1	4.5	1.1	4.5	2.8	6.2	6.7	1.7	1.1	3.4	5.1	2.8	8.4	5.6	3.9	10.7	3.4	9.0	100
07/02	3.3	3.3	0.4	3.3	1.2	0.8	0.8	5.0	3.3	2.5	12.4	6.6	6.2	2.9	2.9	3.3	3.3	3.7	4.6	5.4	7.1	6.2	5.0	6.2	100
07/03	3.2	1.1	1.6	1.1	1.6	1.8	7.7	10.2	4.5	10.0	5.9	4.1	4.1	3.2	3.6	2.3	1.6	2.5	2.7	13.1	4.5	1.6	2.7	5.4	100
07/04	2.5	1.8	1.9	1.8	1.9	4.6	28.1	14.2	4.6	3.9	1.5	2.8	2.6	7.8	1.6	1.6	5.2	0.9	1.9	1.8	3.2	1.1	1.4	1.4	100
07/05	4.7	2.1	2.6	0.9	0.9	1.2	0.2	0.9	2.6	1.4	1.7	7.5	3.1	2.6	5.4	2.8	4.2	2.8	4.5	2.4	6.1	20.3	12.5	6.4	100
07/06	1.3	1.5	0.9	0.8	1.2	0.7	0.8	1.0	5.0	5.9	2.5	1.1	4.5	6.2	3.8	3.6	2.8	2.9	4.5	6.6	5.8	13.0	15.1	8.5	100
07/07	2.2	2.2	2.3	1.9	1.7	2.0	2.1	3.6	4.7	9.5	10.0	3.8	3.9	5.2	4.6	4.0	2.0	1.8	3.0	4.8	3.9	5.6	10.3	4.8	100
07/08	3.3	2.7	3.8	4.3	5.0	6.0	6.1	5.9	6.4	6.3	9.2	11.3	7.8	4.7	2.9	2.9	2.8	2.1	0.9	1.3	1.3	0.8	1.7	0.6	100
07/09	3.2	4.2	1.5	1.2	0.3	1.4	1.4	1.2	2.0	2.4	2.0	0.8	2.9	4.8	2.4	2.5	5.8	4.2	4.8	35.1	3.4	3.7	4.2	4.4	100
07/10	7.1	9.9	4.8	4.8	5.1	5.6	3.6	3.1	3.8	8.2	1.8	3.1	5.6	4.8	4.1	2.0	2.6	3.3	3.3	2.8	2.8	4.3	2.0	1.3	100
07/11	1.8	2.1	4.1	4.1	8.5	5.4	5.6	2.3	2.3	1.8	2.8	1.0	2.1	3.1	1.8	2.6	3.6	8.2	12.3	13.3	4.1	3.1	1.5	2.6	100
07/12	2.1	2.0	4.0	1.3	1.7	1.5	1.8	1.2	1.8	1.7	2.8	2.0	1.9	1.1	1.7	4.5	8.4	14.1	13.0	11.8	7.8	4.8	3.1	3.8	100
07/13	0.3	0.0	0.1	0.0	0.2	0.2	0.4	0.6	0.5	0.5	0.7	0.6	0.9	1.3	1.2	2.6	5.6	9.0	12.6	14.8	12.7	12.9	13.3	9.1	100
07/14	1.5	0.9	1.1	2.3	4.5	7.4	7.4	6.8	3.9	2.8	2.9	2.9	3.1	4.3	4.9	5.2	4.9	5.8	5.7	5.5	5.2	5.6	3.5	1.9	100
07/15	1.0	0.6	0.4	0.6	3.8	12.2	13.8	12.6	7.9	5.8	4.2	3.9	3.1	3.3	2.7	2.9	2.4	2.4	3.6	4.2	3.0	2.8	1.9	1.0	100
07/16	0.7	0.1	0.2	0.2	0.3	1.1	1.7	3.2	2.4	3.9	4.1	4.7	4.6	5.0	6.9	7.2	6.9	8.2	10.7	11.8	6.9	4.8	2.9	1.7	100
07/17	0.6	0.3	0.2	0.2	0.2	0.6	2.3	7.2	9.6	7.7	5.3	7.1	3.7	6.6	5.6	5.4	4.0	3.7	4.6	8.3	7.9	4.5	2.7	1.7	100
07/18	1.3	1.2	0.6	0.3	0.7	1.9	3.5	9.9	7.2	5.4	4.5	3.3	3.9	3.1	4.9	5.2	5.0	3.6	3.9	5.8	12.0	6.8	3.7	2.2	100
07/19	1.5	0.8	0.6	0.5	1.3	1.7	2.8	3.4	7.7	6.0	3.6	2.8	7.1	6.4	3.9	6.1	8.8	8.1	7.7	3.7	5.3	5.4	2.3	2.6	100

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Date	Counts by Hour																								Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
07/20	1.3	0.8	0.4	2.3	0.8	1.2	1.9	1.5	6.1	5.5	6.6	2.5	4.5	6.4	6.3	5.2	4.1	4.2	2.5	2.8	6.7	13.0	8.2	5.3	100
07/21	0.6	0.5	0.4	0.4	0.8	1.4	1.6	4.2	7.9	6.6	6.0	5.7	7.7	6.9	5.8	4.1	4.8	5.0	5.2	6.6	6.1	7.4	3.3	1.0	100
07/22	1.2	1.1	0.8	0.9	1.4	2.4	4.1	2.5	3.6	10.1	11.8	7.7	5.5	3.7	6.6	4.1	5.3	2.9	2.6	4.2	4.4	3.4	6.1	3.6	100
07/23	0.9	0.6	0.4	0.5	1.2	3.8	3.2	3.1	2.7	7.5	9.8	9.2	7.4	6.4	5.2	4.6	3.5	4.5	3.1	5.4	5.5	4.5	4.5	2.6	100
07/24	1.5	1.0	0.2	0.2	0.6	1.5	2.6	2.3	2.5	1.8	2.9	6.2	8.1	11.7	7.7	9.7	6.9	5.4	4.5	4.5	6.1	4.6	4.1	3.4	100
07/25	1.3	0.5	0.7	0.4	0.5	3.4	4.4	3.7	4.8	4.1	4.5	2.4	5.6	8.2	7.8	6.4	7.2	7.3	6.5	5.4	5.1	5.7	3.2	0.8	100
07/26	0.6	0.4	0.1	0.3	0.8	1.9	3.1	3.1	5.3	4.3	2.7	2.2	3.4	5.9	8.8	13.7	10.0	7.6	9.3	6.0	4.4	3.6	1.7	0.8	100
07/27	0.5	0.5	0.2	0.5	0.6	1.5	3.7	5.1	4.5	3.2	3.1	7.0	7.5	6.3	6.4	5.8	8.9	9.0	6.5	5.5	5.0	4.0	3.3	0.9	100
07/28	0.5	0.5	0.4	0.4	1.3	2.9	5.9	6.1	3.2	2.9	5.1	6.1	4.4	7.4	7.1	4.2	4.2	4.2	4.2	8.9	8.8	7.1	2.9	1.2	100
07/29	0.8	1.7	0.2	0.4	1.3	3.2	5.4	7.6	5.6	2.5	5.6	5.1	6.2	3.8	3.9	5.0	3.7	6.7	7.6	7.4	5.3	4.5	4.5	2.2	100
07/30	1.1	0.2	0.1	0.2	0.7	3.9	5.9	4.0	6.4	6.4	4.3	5.5	3.3	3.2	2.9	6.0	6.9	4.2	5.9	9.8	5.3	5.7	5.5	2.3	100
07/31	0.2	0.3	0.0	0.2	0.5	3.4	6.7	4.3	7.5	3.5	5.3	3.8	3.7	3.4	4.3	3.4	3.8	4.2	7.6	9.6	5.7	6.6	7.0	4.9	100
08/01	1.7	0.6	0.4	0.6	0.9	2.4	6.8	9.9	9.6	7.2	4.7	4.0	3.0	4.5	4.0	2.6	2.7	5.4	1.9	4.7	6.4	7.8	4.6	3.6	100
08/02	1.1	0.8	0.6	0.7	1.4	2.0	3.4	9.7	10.6	5.3	3.7	5.2	5.8	6.3	4.7	3.2	1.6	2.3	5.0	7.4	7.8	4.9	4.3	2.3	100
08/03	1.1	0.7	0.6	0.5	0.5	0.9	2.4	4.8	9.4	6.8	6.5	5.4	8.3	6.8	4.7	5.0	3.7	4.0	4.9	5.3	8.1	5.0	2.7	1.8	100
08/04	0.3	0.4	0.4	0.4	0.6	2.9	3.6	3.2	7.8	8.0	6.9	6.2	8.0	9.4	6.3	7.1	5.1	5.4	4.1	2.5	4.3	4.2	2.6	0.2	100
08/05	0.1	0.1	0.2	0.2	0.2	1.3	4.6	3.3	4.2	5.3	8.3	9.1	6.0	7.1	5.5	7.9	5.5	6.8	5.5	5.2	5.4	4.1	2.7	1.3	100
08/06	0.3	0.1	0.1	0.1	0.1	1.0	3.5	6.2	4.2	4.0	4.0	6.9	5.9	3.5	8.8	7.7	8.1	7.2	6.1	8.3	6.3	3.9	3.2	0.7	100
08/07	0.3	0.1	0.1	0.3	0.4	2.8	7.3	8.2	6.2	4.1	2.4	4.7	6.2	5.8	5.6	5.9	7.9	7.5	7.5	7.2	3.8	3.5	2.1	0.3	100
08/08	0.2	0.1	0.1	0.1	0.4	2.5	3.9	4.2	3.6	3.6	2.7	5.6	4.8	6.1	4.5	3.6	7.7	4.5	7.2	5.5	6.9	12.0	9.2	1.2	100
08/09	0.1	4.4	4.8	15.3	9.2	4.5	3.5	5.1	4.8	7.3	3.7	2.4	3.6	2.9	3.8	4.0	3.9	3.3	3.3	2.9	2.8	2.2	1.9	0.5	100
08/10	0.2	0.5	0.1	0.6	0.8	2.1	5.2	5.4	6.0	3.9	4.6	3.5	3.0	3.7	5.5	5.9	14.5	5.2	5.3	6.4	5.9	7.2	3.9	0.6	100
08/11	0.4	0.3	0.1	0.5	1.2	2.3	8.3	8.3	7.8	7.7	4.7	4.8	4.0	3.4	4.1	5.5	5.0	4.3	6.6	6.5	5.7	4.4	1.5	2.6	100
08/12	0.4	0.3	0.1	0.2	0.3	1.4	5.4	8.4	7.3	8.2	5.4	4.9	3.7	4.0	3.8	4.9	5.0	5.9	7.9	9.3	4.2	5.2	2.8	1.2	100
08/13	0.3	0.1	0.0	0.1	0.2	1.7	5.5	6.9	6.7	6.4	5.3	4.2	4.2	5.5	5.1	3.7	5.7	4.7	7.3	5.5	8.0	5.2	4.0	3.7	100
08/14	0.5	1.8	0.3	0.2	0.5	1.1	4.7	7.6	7.9	6.8	6.0	4.6	5.6	5.0	3.1	5.4	7.4	4.3	3.0	4.2	5.7	6.3	4.6	3.1	100
08/15	1.0	0.2	0.3	0.1	0.8	2.7	7.2	9.5	9.2	7.1	6.6	4.9	4.3	4.9	5.2	4.6	4.4	3.6	4.7	3.7	6.6	4.4	3.3	0.7	100
08/16	0.5	0.5	0.1	0.1	0.3	3.0	7.4	7.8	6.9	6.4	6.0	8.1	4.1	4.2	5.1	3.9	5.1	4.7	5.1	4.3	4.3	5.5	5.8	1.0	100
Percentage of Daily Total	1.5	1.2	1.2	1.8	2.6	4.3	5.7	6.0	5.9	4.8	4.4	4.5	4.6	4.8	4.3	4.4	4.6	4.7	5.1	5.9	5.3	5.5	4.1	2.7	100

**Appendix B6.**—Percentage of daily total Kasilof River south bank sonar counts by hour, 15 June through 16 August 2004.

Date	Counts by Hour																								Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
06/15	8.1	8.1	10.2	7.3	5.0	8.2	2.2	5.2	2.5	1.2	1.0	1.0	2.2	2.6	3.2	6.2	2.9	3.8	5.3	3.3	3.8	1.4	2.1	3.1	100
06/16	3.8	5.9	3.4	5.0	6.9	4.7	2.1	4.4	3.7	2.2	4.6	4.8	5.4	3.2	2.2	3.5	3.6	3.0	2.5	8.2	6.1	4.2	3.4	3.5	100
06/17	5.2	6.8	7.8	5.4	6.2	7.1	4.0	4.0	2.5	1.4	3.5	3.5	10.0	2.1	0.8	0.5	2.5	2.1	1.9	4.0	5.1	2.4	4.0	7.4	100
06/18	3.8	2.0	3.2	3.0	3.0	8.3	17.5	9.4	4.4	6.5	4.4	3.2	2.8	1.2	2.3	0.6	1.2	1.1	1.4	6.6	2.8	3.2	3.9	4.1	100
06/19	4.2	4.4	5.7	4.1	3.0	5.3	10.7	11.9	4.7	0.3	2.6	1.1	3.3	1.7	2.7	1.5	2.0	1.3	2.6	3.0	5.5	5.4	5.3	7.7	100
06/20	3.7	5.0	3.0	1.7	2.4	2.7	7.5	11.3	4.8	4.5	1.9	3.3	4.2	2.3	2.3	2.5	2.2	2.1	0.2	1.2	5.4	5.1	8.2	12.3	100
06/21	5.1	3.3	2.7	2.5	4.3	3.8	4.2	9.8	3.7	5.8	8.6	5.8	3.0	1.9	0.9	1.7	1.1	1.5	1.1	1.2	3.8	11.1	9.4	3.9	100
06/22	6.3	3.9	5.1	4.9	3.7	4.0	2.7	4.0	4.3	4.3	1.6	1.1	1.4	3.7	4.6	3.1	2.0	3.1	2.9	4.4	3.3	5.4	10.7	9.6	100
06/23	5.2	5.9	5.4	4.2	3.9	4.4	4.4	4.4	4.5	10.6	2.5	4.2	2.5	2.0	1.4	1.7	1.9	2.4	4.3	2.4	3.4	5.4	6.1	6.9	100
06/24	4.6	4.1	4.2	4.1	1.7	3.7	6.2	4.6	5.4	5.9	9.3	6.7	4.2	2.5	2.2	1.5	1.9	1.4	2.7	0.6	2.5	4.5	6.2	9.3	100
06/25	6.1	4.3	4.3	5.6	10.9	7.6	11.5	5.3	5.4	5.1	4.9	4.6	4.5	2.3	1.5	1.8	1.4	0.9	1.3	1.4	4.3	4.3	0.4	0.1	100
06/26	4.0	4.0	12.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.7	4.5	1.8	4.0	8.1	8.5	2.2	0.7	0.2	0.9	2.9	7.2	3.1	2.5	100
06/27	4.1	1.1	3.3	4.0	3.5	3.2	10.3	6.2	7.3	7.3	5.4	14.6	2.2	1.3	4.1	1.9	0.3	0.8	0.8	0.2	3.8	6.2	4.9	3.3	100
06/28	2.9	1.3	2.3	1.6	11.1	8.4	6.4	4.4	7.3	3.2	3.0	1.5	1.2	7.9	2.0	4.5	9.5	6.8	2.5	3.0	1.9	2.1	2.8	2.7	100
06/29	7.4	2.1	1.9	2.6	1.3	1.7	1.5	1.2	1.1	1.0	1.0	1.5	1.0	6.7	2.5	11.6	13.8	11.4	0.4	2.9	8.5	7.2	6.3	3.5	100
06/30	4.9	3.9	3.9	10.8	12.7	9.5	2.7	4.5	3.9	1.4	3.7	4.6	7.5	3.0	2.2	1.1	1.1	2.4	1.0	1.5	3.8	4.1	3.5	2.3	100
07/01	9.5	6.0	3.4	3.1	3.5	4.8	3.6	1.3	2.0	5.5	4.4	6.8	4.1	6.0	4.7	4.1	1.4	3.5	4.5	8.2	2.1	3.9	1.8	1.9	100
07/02	1.8	1.3	1.1	0.6	0.9	6.9	11.5	7.3	3.4	2.4	10.5	2.7	1.3	1.2	3.2	2.7	1.6	3.0	2.4	7.8	5.6	10.2	4.8	5.5	100
07/03	2.5	0.5	1.5	0.9	0.6	3.7	8.8	7.3	2.6	7.5	10.5	3.1	9.0	2.9	1.4	1.6	1.6	4.6	4.0	6.3	5.6	3.0	3.0	7.6	100
07/04	5.5	1.7	3.0	3.9	5.7	4.0	16.3	12.8	1.5	1.9	5.5	2.4	3.6	4.1	2.0	1.3	2.8	4.0	4.5	2.3	3.1	4.0	1.1	3.1	100
07/05	2.5	6.0	5.5	5.9	4.5	4.3	3.4	3.8	1.8	3.4	4.1	2.8	3.9	3.1	2.8	2.6	1.0	0.9	2.4	3.7	2.8	15.4	8.3	5.0	100
07/06	3.8	4.2	3.0	2.8	3.2	5.3	2.8	6.1	8.4	7.6	1.6	3.1	3.4	1.4	1.0	2.2	2.4	2.9	3.2	1.8	3.8	6.8	14.1	5.2	100
07/07	2.1	1.2	1.9	1.3	2.7	3.0	4.3	3.2	2.8	8.3	8.5	8.1	3.8	4.5	1.8	2.2	2.2	5.2	6.3	5.4	4.3	3.6	8.1	5.3	100
07/08	1.1	1.7	4.5	5.6	7.6	5.9	5.5	7.6	10.2	7.9	5.7	9.2	5.2	1.6	2.5	1.5	1.8	2.1	2.3	1.5	1.0	1.7	2.2	3.8	100
07/09	8.9	7.5	2.7	5.6	9.0	5.7	5.7	2.3	1.1	3.6	4.3	1.2	1.3	3.5	3.2	2.3	2.9	2.2	1.6	6.9	3.6	4.4	2.7	7.7	100
07/10	6.0	9.4	9.3	7.6	7.5	6.7	10.1	9.7	5.6	3.6	1.6	4.8	1.5	1.2	1.3	1.5	2.3	1.1	0.9	1.3	1.9	1.1	2.1	1.7	100
07/11	2.5	1.9	2.0	2.1	3.8	4.6	3.5	4.3	1.7	5.1	4.6	1.5	2.7	0.7	0.8	2.3	5.7	7.7	5.7	5.7	6.7	4.8	14.6	4.8	100
07/12	2.2	3.7	3.2	2.8	3.7	2.2	3.3	4.0	2.4	6.3	3.6	4.4	2.7	3.0	1.8	2.5	5.2	11.4	12.0	7.1	3.5	3.3	2.6	2.9	100
07/13	0.3	0.2	0.3	0.3	0.6	0.8	0.9	0.7	0.3	0.6	0.4	0.3	0.3	0.6	0.6	1.2	2.5	7.0	9.6	13.3	15.6	15.3	14.9	13.5	100
07/14	3.2	2.8	2.8	5.5	7.5	8.4	8.5	6.2	3.8	3.4	3.3	3.1	3.2	3.3	2.3	3.1	3.4	5.5	5.1	3.7	3.5	4.1	2.7	1.6	100

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Appendix B6.–Page 2 of 2.

Date	Counts by Hour																								Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
07/15	1.0	2.0	1.5	2.4	8.2	11.8	13.1	10.9	6.8	3.8	3.3	3.2	3.1	2.7	1.9	2.6	3.0	3.8	4.0	3.0	2.3	2.0	2.5	1.1	100
07/16	1.2	0.9	0.6	0.6	0.5	1.3	1.7	3.6	4.6	10.5	8.8	3.3	5.9	4.8	7.8	7.0	7.0	5.8	7.6	6.6	3.3	1.9	2.2	2.5	100
07/17	2.0	1.6	1.6	0.6	0.7	1.3	4.4	10.2	13.1	9.0	6.0	7.1	6.0	3.3	3.2	4.1	2.7	2.5	2.8	4.6	6.9	2.6	1.9	1.8	100
07/18	2.4	2.2	1.6	1.4	1.1	2.1	3.9	7.0	11.2	7.5	5.5	5.1	4.6	3.4	1.5	2.6	4.7	2.8	3.7	4.9	7.8	5.1	3.7	4.2	100
07/19	5.4	5.2	4.0	2.0	2.5	2.7	4.3	3.5	5.9	6.4	7.5	6.6	6.1	4.3	3.6	4.2	2.7	2.5	2.5	3.6	2.3	2.6	6.2	3.2	100
07/20	4.3	2.6	2.7	1.7	1.8	2.4	3.1	3.1	6.8	7.6	4.7	4.6	7.1	3.9	4.6	4.0	3.5	4.8	3.4	3.7	2.9	8.2	3.8	4.7	100
07/21	2.8	3.7	2.3	2.1	2.5	2.5	2.9	4.1	8.6	11.6	5.4	3.2	5.5	4.0	3.5	4.4	5.9	3.5	4.4	3.7	3.1	3.9	4.0	2.5	100
07/22	3.6	5.2	3.9	3.9	4.0	5.2	4.9	3.3	2.6	5.4	7.9	8.4	5.4	5.1	5.6	4.2	3.0	2.6	1.9	1.4	1.3	1.8	3.9	5.6	100
07/23	2.9	2.6	2.2	1.6	1.9	1.6	3.4	4.7	3.6	4.2	7.7	12.7	12.3	5.7	6.5	4.7	4.6	2.8	1.6	2.4	2.9	1.7	2.5	3.3	100
07/24	4.0	1.9	1.6	1.5	2.5	2.3	2.5	2.8	1.9	2.6	2.8	6.4	6.6	7.6	8.5	6.6	4.0	5.1	5.3	4.2	5.5	3.8	4.6	5.7	100
07/25	4.0	2.9	2.6	2.0	2.0	4.9	4.8	3.3	2.7	2.8	3.4	3.8	8.5	6.2	11.6	8.6	5.6	3.9	4.8	3.4	2.8	2.1	1.1	2.0	100
07/26	1.9	2.1	1.5	1.7	1.6	2.2	2.3	3.8	2.6	3.8	3.1	4.8	3.7	6.2	9.7	8.0	5.6	8.6	7.1	5.7	4.4	3.1	3.2	3.1	100
07/27	2.0	2.9	2.6	2.7	4.0	4.0	6.0	5.3	3.9	4.3	3.9	5.0	4.2	4.7	5.1	6.2	5.4	5.8	4.4	4.8	3.9	4.3	2.8	1.8	100
07/28	0.8	1.7	1.6	2.2	2.6	4.9	6.5	5.8	4.7	4.2	3.8	5.2	3.3	2.5	2.5	2.3	3.8	9.3	8.3	6.3	6.7	4.9	4.1	1.9	100
07/29	1.5	1.2	1.7	1.2	2.9	3.4	5.5	5.1	5.2	4.5	4.8	6.5	3.8	1.9	3.2	2.5	4.9	5.0	7.1	7.6	7.6	7.1	3.4	2.4	100
07/30	1.6	1.7	0.7	1.0	1.0	3.8	5.4	4.6	5.7	4.2	4.3	3.8	1.9	1.2	1.2	3.5	4.5	3.4	5.8	8.7	6.8	8.8	10.4	6.1	100
07/31	2.8	2.3	1.4	1.5	1.0	3.1	5.9	7.1	7.4	5.4	6.5	6.3	2.9	2.5	2.3	1.7	2.1	2.4	4.6	5.8	5.1	7.7	6.8	5.4	100
08/01	4.8	4.5	2.2	1.4	2.7	5.0	6.6	7.0	7.3	3.9	7.9	4.2	1.6	1.5	1.6	2.6	3.2	2.4	1.9	4.1	6.7	5.8	5.1	6.2	100
08/02	3.3	2.1	1.8	1.3	1.8	2.6	5.4	6.4	8.4	6.6	6.0	4.6	7.4	5.8	3.3	2.3	2.1	2.4	2.8	3.6	6.0	7.4	2.7	3.8	100
08/03	3.5	2.3	2.1	1.4	1.2	2.9	2.4	2.1	6.1	8.6	7.4	7.6	11.0	5.1	4.2	4.0	2.0	2.6	3.0	3.0	4.4	5.3	4.3	3.4	100
08/04	2.4	2.2	1.5	1.4	2.0	3.2	4.7	3.6	4.5	7.7	8.0	5.8	5.1	6.7	6.0	4.2	5.5	4.2	5.1	2.5	2.8	4.4	4.9	1.4	100
08/05	2.1	1.7	1.0	0.8	1.7	2.0	5.3	5.4	3.0	3.2	7.6	7.5	7.9	4.9	4.9	7.8	6.8	4.5	4.7	4.9	3.9	2.7	2.9	2.7	100
08/06	1.8	1.3	0.9	1.8	0.8	3.4	7.0	7.4	4.1	3.0	2.9	4.8	3.7	3.7	3.9	6.1	5.3	7.4	8.5	7.5	5.7	4.7	2.9	1.3	100
08/07	1.1	0.6	0.7	0.9	1.3	3.0	7.0	6.2	6.2	4.7	5.8	5.4	5.8	4.1	4.6	5.2	5.2	7.6	7.2	4.7	4.0	3.5	3.4	1.6	100
08/08	1.5	1.2	1.0	1.1	1.6	3.6	7.2	6.3	5.4	2.4	4.2	2.5	4.3	2.4	2.9	6.6	5.6	6.0	4.6	7.9	6.9	7.7	4.5	2.8	100
08/09	2.0	0.9	1.3	1.7	2.3	5.2	5.6	5.3	6.6	6.0	5.1	5.3	4.1	4.7	5.4	6.3	6.2	5.9	6.2	5.3	2.7	1.9	2.4	1.5	100
08/10	3.5	3.0	1.4	1.3	1.5	3.4	10.1	7.4	5.4	5.1	5.0	4.1	3.3	2.9	2.4	4.3	4.1	5.5	4.9	6.0	4.4	5.0	3.7	2.4	100
08/11	4.0	1.5	1.2	0.9	1.4	3.5	6.3	6.5	8.7	6.9	5.3	4.4	4.2	3.2	3.1	4.3	3.8	5.0	4.3	5.1	6.0	3.9	4.0	2.7	100
08/12	2.0	0.9	0.7	0.7	0.9	2.0	4.9	8.2	7.5	6.8	5.0	4.4	4.8	4.1	4.2	6.9	3.9	4.4	3.4	4.7	7.1	5.2	5.6	2.0	100
08/13	1.6	0.7	1.1	0.4	1.3	2.4	5.1	7.6	6.7	5.4	5.6	4.5	4.9	3.2	3.1	3.2	6.1	5.2	6.6	7.9	6.0	4.6	4.0	2.6	100
08/14	2.5	1.6	1.1	1.1	1.0	2.9	4.7	9.2	7.6	7.6	7.4	3.7	4.0	3.3	2.6	2.4	4.3	4.0	4.3	3.8	5.1	7.1	5.1	3.6	100
08/15	3.2	1.3	1.3	0.8	0.6	2.2	6.4	8.0	9.4	5.4	5.1	7.0	4.0	3.6	2.7	4.1	4.4	3.3	5.1	3.6	3.7	4.8	4.6	5.4	100
08/16	1.9	2.6	1.6	1.5	1.2	4.8	6.8	6.7	6.4	5.3	5.5	5.2	3.9	2.2	2.1	5.4	5.8	3.6	5.3	6.7	4.6	4.0	4.8	2.2	100
Percentage of Daily Total	3.1	2.6	2.4	2.9	3.8	4.8	6.1	5.7	4.9	5.1	4.7	4.3	4.0	3.3	3.1	3.4	3.5	4.3	4.6	4.5	4.7	5.1	4.9	4.2	100

**Appendix B7.**—Kasilof River north bank sonar counts by sector, 15 June through 16 August, 2004.

Date	Counts by Sector												Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	Total	Total
15-Jun	94	455	588	569	618	119	78	43	1	11	34	6	2,616	2,616
16-Jun	78	227	158	238	39	17	26	22	8	12	3	6	834	3,450
17-Jun	148	189	85	170	87	27	7	2	0	0	0	0	715	4,165
18-Jun	288	673	237	135	151	8	9	13	10	1	0	1	1,526	5,691
19-Jun	395	747	374	72	52	4	3	8	7	1	0	0	1,663	7,354
20-Jun	1,105	1,474	514	108	215	14	5	5	16	0	1	0	3,457	10,811
21-Jun	1,022	1,696	836	317	271	246	120	221	119	59	24	66	4,997	15,808
22-Jun	5,478	4,244	287	301	1,627	605	116	31	108	23	7	67	12,894	28,702
23-Jun	6,100	3,972	234	308	1,630	644	176	57	125	22	6	63	13,337	42,039
24-Jun	3,912	2,761	225	292	1,025	662	97	145	90	23	49	26	9,307	51,346
25-Jun	5,374	2,724	241	218	636	803	120	128	52	24	86	40	10,446	61,792
26-Jun	221	162	14	19	40	36	3	6	1	22	20	101	645	62,437
27-Jun	338	230	32	33	75	55	7	22	9	10	8	74	893	63,330
28-Jun	747	687	53	94	145	120	12	18	8	0	14	26	1,924	65,254
29-Jun	799	994	132	93	150	63	26	29	18	25	39	40	2,408	67,662
30-Jun	366	72	24	33	44	45	12	84	33	82	76	59	930	68,592
1-Jul	53	3	13	9	9	13	1	26	8	13	18	12	178	68,770
2-Jul	66	7	14	5	4	18	9	43	7	31	28	9	241	69,011
3-Jul	200	5	12	4	10	28	13	61	15	33	46	15	442	69,453
4-Jul	476	29	14	5	5	26	5	60	8	65	83	24	800	70,253
5-Jul	106	82	97	19	11	13	16	26	24	12	9	9	424	70,677
6-Jul	52	121	247	262	239	119	62	98	65	15	7	14	1,301	71,978
7-Jul	135	301	831	900	816	378	178	192	117	58	19	5	3,930	75,908
8-Jul	154	263	549	595	500	258	140	186	72	20	9	13	2,759	78,667
9-Jul	68	36	48	58	50	49	58	116	48	19	8	31	589	79,256
10-Jul	45	16	26	40	51	52	23	93	29	3	5	9	392	79,648
11-Jul	104	27	54	49	38	32	29	37	11	1	3	5	390	80,038
12-Jul	114	50	73	69	100	176	232	280	113	71	15	35	1,328	81,366
13-Jul	101	105	383	2,066	3,426	3,936	2,422	1,024	280	175	359	102	14,379	95,745
14-Jul	386	785	2,663	9,890	10,716	9,051	4,761	1,946	407	308	141	55	41,109	136,854
15-Jul	190	291	956	3,565	4,017	3,629	1,906	728	176	130	57	12	15,657	152,511
16-Jul	67	77	300	1,463	1,701	1,534	845	329	80	89	52	46	6,583	159,094
17-Jul	43	77	247	959	1,134	1,169	640	290	90	62	28	9	4,748	163,842
18-Jul	49	80	228	768	909	906	540	289	86	93	59	16	4,023	167,865
19-Jul	51	71	184	568	456	364	265	173	66	104	107	79	2,488	170,353
20-Jul	58	76	133	391	400	379	287	139	47	57	34	30	2,031	172,384
21-Jul	209	357	651	2,179	2,271	2,144	1,371	629	195	154	56	17	10,233	182,617
22-Jul	129	169	252	979	916	733	480	280	132	138	56	78	4,342	186,959
23-Jul	149	207	408	1,267	1,076	736	319	229	99	70	19	49	4,628	191,587

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**Appendix B7.**—Page 2 of 2.

Date	Counts by Sector												Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	Total	Total
24-Jul	135	199	394	1,085	919	549	265	276	82	56	13	17	3,990	195,577
25-Jul	98	121	192	649	677	787	576	356	71	60	24	32	3,643	199,220
26-Jul	104	147	173	525	594	681	485	224	38	29	29	103	3,132	202,352
27-Jul	111	105	147	353	335	398	309	146	29	31	20	17	2,001	204,353
28-Jul	103	152	174	275	355	552	471	220	52	16	17	20	2,407	206,760
29-Jul	76	130	109	79	176	412	370	243	79	30	24	67	1,795	208,555
30-Jul	66	172	158	91	232	503	451	271	52	19	9	9	2,033	210,588
31-Jul	47	107	110	65	123	261	260	185	37	10	8	7	1,220	211,808
1-Aug	39	106	75	43	115	243	243	166	36	15	6	9	1,096	212,904
2-Aug	29	116	145	87	141	294	328	218	51	19	13	13	1,454	214,358
3-Aug	86	327	360	163	209	432	416	305	75	32	18	24	2,447	216,805
4-Aug	138	462	495	207	279	530	555	390	111	39	24	35	3,265	220,070
5-Aug	116	264	394	208	237	445	436	265	90	40	9	27	2,531	222,601
6-Aug	95	236	190	109	160	344	330	225	53	17	11	17	1,787	224,388
7-Aug	122	177	144	86	197	414	340	226	61	19	14	17	1,817	226,205
8-Aug	67	182	190	108	177	378	385	259	80	50	31	49	1,956	228,161
9-Aug	320	493	417	350	438	869	834	644	235	72	25	35	4,732	232,893
10-Aug	129	388	317	154	209	449	469	358	124	61	32	33	2,723	235,616
11-Aug	100	237	268	112	128	316	353	331	128	54	31	46	2,104	237,720
12-Aug	142	293	238	121	181	402	310	249	96	44	20	25	2,121	239,841
13-Aug	158	366	356	170	110	296	278	226	108	40	15	26	2,149	241,990
14-Aug	176	356	385	208	143	270	349	328	155	76	41	53	2,540	244,530
15-Aug	110	267	342	147	123	220	319	249	129	72	24	52	2,054	246,584
16-Aug	99	239	266	130	95	154	177	194	94	52	22	22	1,544	248,128
<b>Total</b>	<b>32,137</b>	<b>30,186</b>	<b>18,456</b>	<b>34,635</b>	<b>42,013</b>	<b>39,410</b>	<b>24,728</b>	<b>14,662</b>	<b>4,846</b>	<b>2,989</b>	<b>2,065</b>	<b>2,004</b>	<b>248,131</b>	

**Appendix B8.**–Kasilof River south bank sonar counts by sector, 15 June through 16 August, 2004.

Date	Counts by Sector												Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	Total	Total
15-Jun	25	307	670	276	256	0	1	2	0	2	1	20	1,560	1,560
16-Jun	29	360	298	137	177	0	0	1	0	0	0	1	1,003	2,563
17-Jun	43	158	155	79	162	10	12	2	0	0	2	8	631	3,194
18-Jun	66	187	336	156	127	92	154	2	4	0	0	0	1,124	4,318
19-Jun	104	216	387	120	147	81	137	0	0	0	0	0	1,192	5,510
20-Jun	485	813	892	294	242	151	171	3	2	0	0	2	3,055	8,565
21-Jun	1,003	2,014	1,750	482	446	174	266	0	0	0	0	1	6,136	14,701
22-Jun	1,095	2,650	1,503	1,150	1,032	449	307	458	500	308	304	148	9,904	24,605
23-Jun	867	4,720	1,251	1,801	1,323	681	102	592	941	543	300	85	13,206	37,811
24-Jun	688	7,838	2,181	2,863	1,772	857	78	654	934	453	321	108	18,747	56,558
25-Jun	1,251	3,408	1,272	1,218	976	291	83	250	554	242	185	94	9,824	66,382
26-Jun	139	97	34	24	21	2	0	1	5	17	31	76	447	66,829
27-Jun	420	148	48	1	2	0	0	0	0	2	9	1	631	67,460
28-Jun	354	500	128	11	2	3	0	0	0	1	9	9	1,017	68,477
29-Jun	629	540	602	106	44	48	2	7	19	15	35	62	2,109	70,586
30-Jun	370	1,041	1,408	357	210	148	26	26	39	36	24	21	3,706	74,292
1-Jul	99	183	462	153	45	88	13	10	2	9	10	1	1,075	75,367
2-Jul	67	264	657	224	33	123	14	17	7	42	25	10	1,483	76,850
3-Jul	158	476	943	372	67	178	23	28	8	38	23	8	2,322	79,172
4-Jul	231	796	1,682	432	75	216	8	26	9	39	18	7	3,539	82,711
5-Jul	176	323	464	137	32	94	7	23	3	30	7	11	1,307	84,018
6-Jul	515	608	711	142	24	94	6	18	9	42	6	12	2,187	86,205
7-Jul	976	1,935	1,589	207	14	96	5	7	6	15	13	4	4,867	91,072
8-Jul	647	1,252	873	73	5	31	0	6	7	5	6	2	2,907	93,979
9-Jul	213	187	98	121	115	53	29	50	51	20	21	9	967	94,946
10-Jul	138	37	76	285	279	118	52	108	98	37	141	8	1,377	96,323
11-Jul	49	130	50	207	286	134	45	86	79	57	62	0	1,185	97,508
12-Jul	65	42	293	588	747	312	199	173	91	54	31	30	2,625	100,133
13-Jul	1,155	2,317	4,084	6,412	5,873	1,280	545	186	91	45	43	38	22,069	122,202
14-Jul	2,824	4,751	8,872	15,286	13,603	4,287	1,544	316	31	21	38	50	51,623	173,825
15-Jul	1,288	2,153	3,931	7,290	5,305	1,597	361	63	3	6	24	19	22,040	195,865
16-Jul	548	749	1,664	3,560	3,019	1,035	325	58	7	13	6	11	10,995	206,860
17-Jul	314	401	838	1,884	1,824	582	220	74	11	3	12	17	6,180	213,040
18-Jul	76	178	416	1,024	1,371	513	215	40	3	5	10	9	3,860	216,900
19-Jul	79	100	222	437	1,338	488	289	68	12	9	9	10	3,061	219,961
20-Jul	91	106	131	307	991	391	270	83	21	15	8	26	2,440	222,401
21-Jul	110	216	398	646	1,943	1,620	503	317	59	22	42	25	5,901	228,302
22-Jul	88	142	263	543	1,156	505	239	121	14	11	12	22	3,116	231,418
23-Jul	125	273	485	1,061	1,709	517	360	272	21	9	9	38	4,879	236,297
24-Jul	197	367	439	832	1,438	417	293	310	18	15	12	29	4,367	240,664
25-Jul	246	228	327	647	1,336	454	444	349	15	7	7	47	4,107	244,771
26-Jul	214	230	338	527	926	673	165	166	86	15	2	24	3,366	248,137

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**Appendix B8.**–Page 2 of 2.

<b>Date</b>	<b>Counts by Sector</b>												<b>Daily</b>	<b>Cum</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>Total</b>	<b>Total</b>
27-Jul	148	200	317	402	632	537	223	180	64	24	10	8	2,745	250,882
28-Jul	423	519	579	558	614	452	217	194	72	21	8	5	3,662	254,544
29-Jul	346	503	430	536	623	170	101	56	29	6	6	9	2,815	257,359
30-Jul	282	392	441	598	543	180	120	48	16	20	18	16	2,674	260,033
31-Jul	405	503	430	487	527	132	121	34	8	7	19	12	2,685	262,718
1-Aug	229	255	297	303	429	133	104	42	9	8	3	18	1,830	264,548
2-Aug	335	337	436	421	503	163	120	43	10	6	10	7	2,391	266,939
3-Aug	433	421	712	581	683	320	155	71	21	14	14	20	3,445	270,384
4-Aug	1,201	1,239	1,841	1,412	1,271	826	242	290	70	38	14	14	8,458	278,842
5-Aug	593	904	1,033	909	916	427	173	138	30	14	6	11	5,154	283,996
6-Aug	426	470	685	620	637	612	314	181	61	78	37	16	4,137	288,133
7-Aug	378	526	569	628	615	296	260	125	31	44	19	27	3,518	291,651
8-Aug	567	690	570	517	518	166	203	68	23	14	8	18	3,362	295,013
9-Aug	985	1,267	824	834	463	259	221	93	26	16	19	43	5,050	300,063
10-Aug	958	825	601	528	476	299	289	84	49	40	26	33	4,208	304,271
11-Aug	649	803	646	678	459	395	372	145	44	47	54	44	4,336	308,607
12-Aug	969	896	657	449	367	247	268	110	31	27	23	23	4,067	312,674
13-Aug	932	973	881	696	679	369	428	187	48	40	24	46	5,303	317,977
14-Aug	671	753	698	636	620	398	434	235	43	45	21	40	4,594	322,571
15-Aug	593	581	637	518	587	372	398	98	34	32	13	54	3,917	326,488
16-Aug	607	528	656	382	326	177	163	45	30	19	20	12	2,965	329,453
<b>Total</b>	<b>30,388</b>	<b>57,028</b>	<b>57,161</b>	<b>65,165</b>	<b>62,981</b>	<b>25,813</b>	<b>12,439</b>	<b>7,440</b>	<b>4,509</b>	<b>2,763</b>	<b>2,190</b>	<b>1,579</b>	<b>329,456</b>	

**Appendix B9.**—Percentage of daily total Kasilof River north bank sonar counts by sector, 15 June through 16 August, 2004.

Date	Counts by Sector											Daily	
	1	2	3	4	5	6	7	8	9	10	11	12 Total	
15-Jun	3.6	17.4	22.5	21.8	23.6	4.5	3.0	1.6	0.0	0.4	1.3	0.2	100.0
16-Jun	9.4	27.2	18.9	28.5	4.7	2.0	3.1	2.6	1.0	1.4	0.4	0.7	100.0
17-Jun	20.7	26.4	11.9	23.8	12.2	3.8	1.0	0.3	0.0	0.0	0.0	0.0	100.0
18-Jun	18.9	44.1	15.5	8.8	9.9	0.5	0.6	0.9	0.7	0.1	0.0	0.1	100.0
19-Jun	23.8	44.9	22.5	4.3	3.1	0.2	0.2	0.5	0.4	0.1	0.0	0.0	100.0
20-Jun	32.0	42.6	14.9	3.1	6.2	0.4	0.1	0.1	0.5	0.0	0.0	0.0	100.0
21-Jun	20.5	33.9	16.7	6.3	5.4	4.9	2.4	4.4	2.4	1.2	0.5	1.3	100.0
22-Jun	42.5	32.9	2.2	2.3	12.6	4.7	0.9	0.2	0.8	0.2	0.1	0.5	100.0
23-Jun	45.7	29.8	1.8	2.3	12.2	4.8	1.3	0.4	0.9	0.2	0.0	0.5	100.0
24-Jun	42.0	29.7	2.4	3.1	11.0	7.1	1.0	1.6	1.0	0.2	0.5	0.3	100.0
25-Jun	51.4	26.1	2.3	2.1	6.1	7.7	1.1	1.2	0.5	0.2	0.8	0.4	100.0
26-Jun	34.3	25.1	2.2	2.9	6.2	5.6	0.5	0.9	0.2	3.4	3.1	15.7	100.0
27-Jun	37.8	25.8	3.6	3.7	8.4	6.2	0.8	2.5	1.0	1.1	0.9	8.3	100.0
28-Jun	38.8	35.7	2.8	4.9	7.5	6.2	0.6	0.9	0.4	0.0	0.7	1.4	100.0
29-Jun	33.2	41.3	5.5	3.9	6.2	2.6	1.1	1.2	0.7	1.0	1.6	1.7	100.0
30-Jun	39.4	7.7	2.6	3.5	4.7	4.8	1.3	9.0	3.5	8.8	8.2	6.3	100.0
1-Jul	29.8	1.7	7.3	5.1	5.1	7.3	0.6	14.6	4.5	7.3	10.1	6.7	100.0
2-Jul	27.4	2.9	5.8	2.1	1.7	7.5	3.7	17.8	2.9	12.9	11.6	3.7	100.0
3-Jul	45.2	1.1	2.7	0.9	2.3	6.3	2.9	13.8	3.4	7.5	10.4	3.4	100.0
4-Jul	59.5	3.6	1.8	0.6	0.6	3.2	0.6	7.5	1.0	8.1	10.4	3.0	100.0
5-Jul	25.0	19.3	22.9	4.5	2.6	3.1	3.8	6.1	5.7	2.8	2.1	2.1	100.0
6-Jul	4.0	9.3	19.0	20.1	18.4	9.1	4.8	7.5	5.0	1.2	0.5	1.1	100.0
7-Jul	3.4	7.7	21.1	22.9	20.8	9.6	4.5	4.9	3.0	1.5	0.5	0.1	100.0
8-Jul	5.6	9.5	19.9	21.6	18.1	9.4	5.1	6.7	2.6	0.7	0.3	0.5	100.0
9-Jul	11.5	6.1	8.1	9.8	8.5	8.3	9.8	19.7	8.1	3.2	1.4	5.3	100.0
10-Jul	11.5	4.1	6.6	10.2	13.0	13.3	5.9	23.7	7.4	0.8	1.3	2.3	100.0
11-Jul	26.7	6.9	13.8	12.6	9.7	8.2	7.4	9.5	2.8	0.3	0.8	1.3	100.0
12-Jul	8.6	3.8	5.5	5.2	7.5	13.3	17.5	21.1	8.5	5.3	1.1	2.6	100.0
13-Jul	0.7	0.7	2.7	14.4	23.8	27.4	16.8	7.1	1.9	1.2	2.5	0.7	100.0
14-Jul	0.9	1.9	6.5	24.1	26.1	22.0	11.6	4.7	1.0	0.7	0.3	0.1	100.0
15-Jul	1.2	1.9	6.1	22.8	25.7	23.2	12.2	4.6	1.1	0.8	0.4	0.1	100.0
16-Jul	1.0	1.2	4.6	22.2	25.8	23.3	12.8	5.0	1.2	1.4	0.8	0.7	100.0
17-Jul	0.9	1.6	5.2	20.2	23.9	24.6	13.5	6.1	1.9	1.3	0.6	0.2	100.0
18-Jul	1.2	2.0	5.7	19.1	22.6	22.5	13.4	7.2	2.1	2.3	1.5	0.4	100.0
19-Jul	2.0	2.9	7.4	22.8	18.3	14.6	10.7	7.0	2.7	4.2	4.3	3.2	100.0
20-Jul	2.9	3.7	6.5	19.3	19.7	18.7	14.1	6.8	2.3	2.8	1.7	1.5	100.0
21-Jul	2.0	3.5	6.4	21.3	22.2	21.0	13.4	6.1	1.9	1.5	0.5	0.2	100.0
22-Jul	3.0	3.9	5.8	22.5	21.1	16.9	11.1	6.4	3.0	3.2	1.3	1.8	100.0
23-Jul	3.2	4.5	8.8	27.4	23.2	15.9	6.9	4.9	2.1	1.5	0.4	1.1	100.0
24-Jul	3.4	5.0	9.9	27.2	23.0	13.8	6.6	6.9	2.1	1.4	0.3	0.4	100.0

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**Appendix B9.**–Page 2 of 2.

<b>Date</b>	<b>Counts by Sector</b>												<b>Daily</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>Total</b>
25-Jul	2.7	3.3	5.3	17.8	18.6	21.6	15.8	9.8	1.9	1.6	0.7	0.9	100.0
26-Jul	3.3	4.7	5.5	16.8	19.0	21.7	15.5	7.2	1.2	0.9	0.9	3.3	100.0
27-Jul	5.5	5.2	7.3	17.6	16.7	19.9	15.4	7.3	1.4	1.5	1.0	0.8	100.0
28-Jul	4.3	6.3	7.2	11.4	14.7	22.9	19.6	9.1	2.2	0.7	0.7	0.8	100.0
29-Jul	4.2	7.2	6.1	4.4	9.8	23.0	20.6	13.5	4.4	1.7	1.3	3.7	100.0
30-Jul	3.2	8.5	7.8	4.5	11.4	24.7	22.2	13.3	2.6	0.9	0.4	0.4	100.0
31-Jul	3.9	8.8	9.0	5.3	10.1	21.4	21.3	15.2	3.0	0.8	0.7	0.6	100.0
1-Aug	3.6	9.7	6.8	3.9	10.5	22.2	22.2	15.1	3.3	1.4	0.5	0.8	100.0
2-Aug	2.0	8.0	10.0	6.0	9.7	20.2	22.6	15.0	3.5	1.3	0.9	0.9	100.0
3-Aug	3.5	13.4	14.7	6.7	8.5	17.7	17.0	12.5	3.1	1.3	0.7	1.0	100.0
4-Aug	4.2	14.2	15.2	6.3	8.5	16.2	17.0	11.9	3.4	1.2	0.7	1.1	100.0
5-Aug	4.6	10.4	15.6	8.2	9.4	17.6	17.2	10.5	3.6	1.6	0.4	1.1	100.0
6-Aug	5.3	13.2	10.6	6.1	9.0	19.3	18.5	12.6	3.0	1.0	0.6	1.0	100.0
7-Aug	6.7	9.7	7.9	4.7	10.8	22.8	18.7	12.4	3.4	1.0	0.8	0.9	100.0
8-Aug	3.4	9.3	9.7	5.5	9.0	19.3	19.7	13.2	4.1	2.6	1.6	2.5	100.0
9-Aug	6.8	10.4	8.8	7.4	9.3	18.4	17.6	13.6	5.0	1.5	0.5	0.7	100.0
10-Aug	4.7	14.2	11.6	5.7	7.7	16.5	17.2	13.1	4.6	2.2	1.2	1.2	100.0
11-Aug	4.8	11.3	12.7	5.3	6.1	15.0	16.8	15.7	6.1	2.6	1.5	2.2	100.0
12-Aug	6.7	13.8	11.2	5.7	8.5	19.0	14.6	11.7	4.5	2.1	0.9	1.2	100.0
13-Aug	7.4	17.0	16.6	7.9	5.1	13.8	12.9	10.5	5.0	1.9	0.7	1.2	100.0
14-Aug	6.9	14.0	15.2	8.2	5.6	10.6	13.7	12.9	6.1	3.0	1.6	2.1	100.0
15-Aug	5.4	13.0	16.7	7.2	6.0	10.7	15.5	12.1	6.3	3.5	1.2	2.5	100.0
16-Aug	6.4	15.5	17.2	8.4	6.2	10.0	11.5	12.6	6.1	3.4	1.4	1.4	100.0
<b>Total</b>	<b>13.0</b>	<b>12.2</b>	<b>7.4</b>	<b>14.0</b>	<b>16.9</b>	<b>15.9</b>	<b>10.0</b>	<b>5.9</b>	<b>2.0</b>	<b>1.2</b>	<b>0.8</b>	<b>0.8</b>	<b>100.0</b>

**Appendix B10.**—Percentage of daily total Kasilof River south bank sonar counts by sector, 15 June through 16 August, 2004.

Date	Counts by Sector												Daily Total
	1	2	3	4	5	6	7	8	9	10	11	12	
15-Jun	1.6	19.7	42.9	17.7	16.4	0.0	0.1	0.1	0.0	0.1	0.1	1.3	100.0
16-Jun	2.9	35.9	29.7	13.7	17.6	0.0	0.0	0.1	0.0	0.0	0.0	0.1	100.0
17-Jun	6.8	25.0	24.6	12.5	25.7	1.6	1.9	0.3	0.0	0.0	0.3	1.3	100.0
18-Jun	5.9	16.6	29.9	13.9	11.3	8.2	13.7	0.2	0.4	0.0	0.0	0.0	100.0
19-Jun	8.7	18.1	32.5	10.1	12.3	6.8	11.5	0.0	0.0	0.0	0.0	0.0	100.0
20-Jun	15.9	26.6	29.2	9.6	7.9	4.9	5.6	0.1	0.1	0.0	0.0	0.1	100.0
21-Jun	16.3	32.8	28.5	7.9	7.3	2.8	4.3	0.0	0.0	0.0	0.0	0.0	100.0
22-Jun	11.1	26.8	15.2	11.6	10.4	4.5	3.1	4.6	5.0	3.1	3.1	1.5	100.0
23-Jun	6.6	35.7	9.5	13.6	10.0	5.2	0.8	4.5	7.1	4.1	2.3	0.6	100.0
24-Jun	3.7	41.8	11.6	15.3	9.5	4.6	0.4	3.5	5.0	2.4	1.7	0.6	100.0
25-Jun	12.7	34.7	12.9	12.4	9.9	3.0	0.8	2.5	5.6	2.5	1.9	1.0	100.0
26-Jun	31.1	21.7	7.6	5.4	4.7	0.4	0.0	0.2	1.1	3.8	6.9	17.0	100.0
27-Jun	66.6	23.5	7.6	0.2	0.3	0.0	0.0	0.0	0.0	0.3	1.4	0.2	100.0
28-Jun	34.8	49.2	12.6	1.1	0.2	0.3	0.0	0.0	0.0	0.1	0.9	0.9	100.0
29-Jun	29.8	25.6	28.5	5.0	2.1	2.3	0.1	0.3	0.9	0.7	1.7	2.9	100.0
30-Jun	10.0	28.1	38.0	9.6	5.7	4.0	0.7	0.7	1.1	1.0	0.6	0.6	100.0
1-Jul	9.2	17.0	43.0	14.2	4.2	8.2	1.2	0.9	0.2	0.8	0.9	0.1	100.0
2-Jul	4.5	17.8	44.3	15.1	2.2	8.3	0.9	1.1	0.5	2.8	1.7	0.7	100.0
3-Jul	6.8	20.5	40.6	16.0	2.9	7.7	1.0	1.2	0.3	1.6	1.0	0.3	100.0
4-Jul	6.5	22.5	47.5	12.2	2.1	6.1	0.2	0.7	0.3	1.1	0.5	0.2	100.0
5-Jul	13.5	24.7	35.5	10.5	2.4	7.2	0.5	1.8	0.2	2.3	0.5	0.8	100.0
6-Jul	23.5	27.8	32.5	6.5	1.1	4.3	0.3	0.8	0.4	1.9	0.3	0.5	100.0
7-Jul	20.1	39.8	32.6	4.3	0.3	2.0	0.1	0.1	0.1	0.3	0.3	0.1	100.0
8-Jul	22.3	43.1	30.0	2.5	0.2	1.1	0.0	0.2	0.2	0.2	0.2	0.1	100.0
9-Jul	22.0	19.3	10.1	12.5	11.9	5.5	3.0	5.2	5.3	2.1	2.2	0.9	100.0
10-Jul	10.0	2.7	5.5	20.7	20.3	8.6	3.8	7.8	7.1	2.7	10.2	0.6	100.0
11-Jul	4.1	11.0	4.2	17.5	24.1	11.3	3.8	7.3	6.7	4.8	5.2	0.0	100.0
12-Jul	2.5	1.6	11.2	22.4	28.5	11.9	7.6	6.6	3.5	2.1	1.2	1.1	100.0
13-Jul	5.2	10.5	18.5	29.1	26.6	5.8	2.5	0.8	0.4	0.2	0.2	0.2	100.0
14-Jul	5.5	9.2	17.2	29.6	26.4	8.3	3.0	0.6	0.1	0.0	0.1	0.1	100.0
15-Jul	5.8	9.8	17.8	33.1	24.1	7.2	1.6	0.3	0.0	0.0	0.1	0.1	100.0
16-Jul	5.0	6.8	15.1	32.4	27.5	9.4	3.0	0.5	0.1	0.1	0.1	0.1	100.0
17-Jul	5.1	6.5	13.6	30.5	29.5	9.4	3.6	1.2	0.2	0.0	0.2	0.3	100.0
18-Jul	2.0	4.6	10.8	26.5	35.5	13.3	5.6	1.0	0.1	0.1	0.3	0.2	100.0
19-Jul	2.6	3.3	7.3	14.3	43.7	15.9	9.4	2.2	0.4	0.3	0.3	0.3	100.0
20-Jul	3.7	4.3	5.4	12.6	40.6	16.0	11.1	3.4	0.9	0.6	0.3	1.1	100.0
21-Jul	1.9	3.7	6.7	10.9	32.9	27.5	8.5	5.4	1.0	0.4	0.7	0.4	100.0
22-Jul	2.8	4.6	8.4	17.4	37.1	16.2	7.7	3.9	0.4	0.4	0.4	0.7	100.0
23-Jul	2.6	5.6	9.9	21.7	35.0	10.6	7.4	5.6	0.4	0.2	0.2	0.8	100.0
24-Jul	4.5	8.4	10.1	19.1	32.9	9.5	6.7	7.1	0.4	0.3	0.3	0.7	100.0

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Date	Counts by Sector												Daily Total
	1	2	3	4	5	6	7	8	9	10	11	12	
25-Jul	6.0	5.6	8.0	15.8	32.5	11.1	10.8	8.5	0.4	0.2	0.2	1.1	100.0
26-Jul	6.4	6.8	10.0	15.7	27.5	20.0	4.9	4.9	2.6	0.4	0.1	0.7	100.0
27-Jul	5.4	7.3	11.5	14.6	23.0	19.6	8.1	6.6	2.3	0.9	0.4	0.3	100.0
28-Jul	11.6	14.2	15.8	15.2	16.8	12.3	5.9	5.3	2.0	0.6	0.2	0.1	100.0
29-Jul	12.3	17.9	15.3	19.0	22.1	6.0	3.6	2.0	1.0	0.2	0.2	0.3	100.0
30-Jul	10.5	14.7	16.5	22.4	20.3	6.7	4.5	1.8	0.6	0.7	0.7	0.6	100.0
31-Jul	15.1	18.7	16.0	18.1	19.6	4.9	4.5	1.3	0.3	0.3	0.7	0.4	100.0
1-Aug	12.5	13.9	16.2	16.6	23.4	7.3	5.7	2.3	0.5	0.4	0.2	1.0	100.0
2-Aug	14.0	14.1	18.2	17.6	21.0	6.8	5.0	1.8	0.4	0.3	0.4	0.3	100.0
3-Aug	12.6	12.2	20.7	16.9	19.8	9.3	4.5	2.1	0.6	0.4	0.4	0.6	100.0
4-Aug	14.2	14.6	21.8	16.7	15.0	9.8	2.9	3.4	0.8	0.4	0.2	0.2	100.0
5-Aug	11.5	17.5	20.0	17.6	17.8	8.3	3.4	2.7	0.6	0.3	0.1	0.2	100.0
6-Aug	10.3	11.4	16.6	15.0	15.4	14.8	7.6	4.4	1.5	1.9	0.9	0.4	100.0
7-Aug	10.7	15.0	16.2	17.9	17.5	8.4	7.4	3.6	0.9	1.3	0.5	0.8	100.0
8-Aug	16.9	20.5	17.0	15.4	15.4	4.9	6.0	2.0	0.7	0.4	0.2	0.5	100.0
9-Aug	19.5	25.1	16.3	16.5	9.2	5.1	4.4	1.8	0.5	0.3	0.4	0.9	100.0
10-Aug	22.8	19.6	14.3	12.5	11.3	7.1	6.9	2.0	1.2	1.0	0.6	0.8	100.0
11-Aug	15.0	18.5	14.9	15.6	10.6	9.1	8.6	3.3	1.0	1.1	1.2	1.0	100.0
12-Aug	23.8	22.0	16.2	11.0	9.0	6.1	6.6	2.7	0.8	0.7	0.6	0.6	100.0
13-Aug	17.6	18.3	16.6	13.1	12.8	7.0	8.1	3.5	0.9	0.8	0.5	0.9	100.0
14-Aug	14.6	16.4	15.2	13.8	13.5	8.7	9.4	5.1	0.9	1.0	0.5	0.9	100.0
15-Aug	15.1	14.8	16.3	13.2	15.0	9.5	10.2	2.5	0.9	0.8	0.3	1.4	100.0
16-Aug	20.5	17.8	22.1	12.9	11.0	6.0	5.5	1.5	1.0	0.6	0.7	0.4	100.0
Percentage of Daily Total	9.2	17.3	17.4	19.8	19.1	7.8	3.8	2.3	1.4	0.8	0.7	0.5	100.0

**Appendix B11.**—Minimum and maximum daily counting ranges for both banks of the Kasilof River and range from transducer where a minimum of 80% of the migration occurred in 2004.

Date	North Bank					South Bank				
	Counting Range		Average Sector	Range where > 80% of Migration	Sectors where > 80% of Migration	Counting Range		Average Sector	Range where > 80% of Migration	Sectors where > 80% of Migration
	(ft)	(m)	(m)	Occurred (m)	Occurred	(ft)	(m)	(m)	Occurred (m)	Occurred
15-Jun	60	18.3	1.5	6.1	1 - 4	80	24.4	2.0	10.2	1 - 5
16-Jun	60	18.3	1.5	6.1	1 - 4	80	24.4	2.0	8.1	1 - 4
16-Jun						75	22.9	1.9		1 - 4
17-Jun	60	18.3	1.5	7.6	1 - 5	75	22.9	1.9	7.6	1 - 4
17-Jun						50	15.2	1.3		1 - 4
18-Jun	60	18.3	1.5	9.1	1 - 6	50	15.2	1.3	5.1	1 - 4
18-Jun	50	15.2	1.3	7.6	1 - 6					
19-Jun	50	15.2	1.3	6.4	1 - 5	50	15.2	1.3	3.8	1 - 3
20-Jun	50	15.2	1.3	5.1	1 - 4	50	15.2	1.3	3.8	1 - 3
21-Jun	50	15.2	1.3	5.1	1 - 4	50	15.2	1.3	6.4	1 - 5
21-Jun	41	12.5	1.0	4.2	1 - 4					
22-Jun	41	12.5	1.0	7.3	1 - 7	50	15.2	1.3	5.1	1 - 4
22-Jun						65	19.8	1.7		1 - 4
23-Jun	41	12.5	1.0	5.2	1 - 5	65	19.8	1.7	6.6	1 - 4
24-Jun	41	12.5	1.0	4.2	1 - 4	65	19.8	1.7	8.3	1 - 5
24-Jun	44	13.4	1.1	4.5	1 - 4					
25-Jun	44	13.4	1.1	5.6	1 - 5	65	19.8	1.7	5.0	1 - 3
25-Jun	48	14.6	1.2	6.1	1 - 5					
26-Jun	45	13.7	1.1	12.6	1 - 11	65	19.8	1.7	9.9	1 - 6
26-Jun						50	15.2	1.3		1 - 6
27-Jun	45	13.7	1.1	2.3	1 - 2	50	15.2	1.3	7.6	1 - 6
27-Jun	44	13.4	1.1	2.2	1 - 2	45	13.7	1.1		1 - 6
28-Jun	43	13.1	1.1	2.2	1 - 2	45	13.7	1.1	5.7	1 - 5
28-Jun	45	13.7	1.1	2.3	1 - 2					
29-Jun	43	13.1	1.1	3.3	1 - 3	44	13.4	1.1	3.4	1 - 3
29-Jun	31	9.4	0.8	2.4	1 - 3	37	11.3	0.9		1 - 3
30-Jun	29	8.7	0.7	2.9	1 - 4	38	11.6	1.0	9.7	1 - 10
30-Jun	43	13.1	1.1	5.5	1 - 5					
1-Jul	43	13.1	1.1	4.4	1 - 4	38	11.6	1.0	9.7	1 - 10
2-Jul	43	13.1	1.1	4.4	1 - 4	38	11.6	1.0	9.7	1 - 10
3-Jul	43	13.1	1.1	4.4	1 - 4	38	11.6	1.0	9.7	1 - 10
4-Jul	43	13.1	1.1	4.4	1 - 4	38	11.6	1.0	9.7	1 - 10
5-Jul	43	13.1	1.1	4.4	1 - 4	38	11.6	1.0	6.8	1 - 7
5-Jul	17	5.0	0.4	2.1	1 - 5					
6-Jul	17	5.0	0.4	1.3	1 - 3	38	11.6	1.0	5.8	1 - 6
6-Jul	16	4.7	0.4	1.2	1 - 3					
7-Jul	16	4.9	0.4	1.2	1 - 3	37	11.3	0.9	5.6	1 - 6
8-Jul	16	4.9	0.4	2.0	1 - 5	37	11.3	0.9	4.7	1 - 5
8-Jul						40	12.2	1.0	5.1	1 - 5
9-Jul	16	4.9	0.4	2.4	1 - 6	40	12.2	1.0	8.1	1 - 8
9-Jul						37	11.3	0.9	7.5	1 - 8
10-Jul	16	4.9	0.4	3.7	1 - 9	37	11.3	0.9	7.5	1 - 8
11-Jul	16	4.9	0.4	3.7	1 - 9	37	11.3	0.9	6.6	1 - 7
12-Jul	16	4.9	0.4	2.8	1 - 7	28	8.5	0.7	5.7	1 - 8
12-Jul	10	3.0	0.3	1.8	1 - 7	40	12.2	1.0	8.1	1 - 8
13-Jul	10	3.0	0.3	1.3	1 - 5	40	12.2	1.0	7.1	1 - 7
13-Jul	14	4.3	0.4	1.8	1 - 5	28	8.5	0.7	5.0	1 - 7

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Date	North Bank					South Bank				
	Counting Range (Sectors 1-12)		Average Sector Width	Range where > 80% of Migration Occurred (m)	Sectors where > 80% of Migration Occurred	Counting Range (Sectors 1-12)		Average Sector Width	Range where > 80% of Migration Occurred (m)	Sectors where > 80% of Migration Occurred
	(ft)	(m)	(m)		(ft)	(m)	(m)			
14-Jul	11	3.4	0.3	1.4	1 - 5	28	8.5	0.7	4.3	1 - 6
14-Jul						27	8.2	0.7	4.1	1 - 6
15-Jul	11	3.4	0.3	1.4	1 - 5	27	8.2	0.7	4.1	1 - 6
16-Jul	11	3.4	0.3	1.4	1 - 5	27	8.2	0.7	4.8	1 - 7
17-Jul	11	3.4	0.3	1.4	1 - 5	27	8.2	0.7	4.8	1 - 7
18-Jul	11	3.4	0.3	1.7	1 - 6	27	8.2	0.7	4.8	1 - 7
19-Jul	11	3.4	0.3	1.7	1 - 6	27	8.2	0.7	5.5	1 - 8
19-Jul	14	4.3	0.4	2.1	1 - 6					
20-Jul	14	4.3	0.4	2.1	1 - 6	27	8.2	0.7	4.8	1 - 7
20-Jul	11	3.4	0.3	1.7	1 - 6					
21-Jul	11	3.4	0.3	1.7	1 - 6	27	8.2	0.7	4.8	1 - 7
21-Jul						24	7.3	0.6	4.3	1 - 7
22-Jul	11	3.4	0.3	1.7	1 - 6	24	7.3	0.6	4.3	1 - 7
22-Jul	14	4.3	0.4	2.1	1 - 6	25	7.6	0.6	4.4	1 - 7
23-Jul	12	3.7	0.3	1.8	1 - 6	25	7.6	0.6	3.8	1 - 6
24-Jul	12	3.7	0.3	1.8	1 - 6	25	7.6	0.6	3.8	1 - 6
25-Jul	12	3.7	0.3	2.1	1 - 7	25	7.6	0.6	4.4	1 - 7
25-Jul	10	3.0	0.3	1.8	1 - 7					
26-Jul	10	3.0	0.3	1.5	1 - 6	25	7.6	0.6	4.4	1 - 7
26-Jul						22	6.7	0.6	3.9	1 - 7
27-Jul	10	3.0	0.3	1.5	1 - 6	27	8.2	0.7	4.8	1 - 7
27-Jul						16	4.9	0.4	2.8	1 - 7
28-Jul	10	3.0	0.3	1.5	1 - 6	16	4.9	0.4	2.8	1 - 7
28-Jul	11	3.4	0.3	1.7	1 - 6	25	7.6	0.6	4.4	1 - 7
29-Jul	11	3.4	0.3	1.4	1 - 5	25	7.6	0.6	5.1	1 - 8
30-Jul	11	3.4	0.3	1.4	1 - 5	17	5.2	0.4	3.0	1 - 7
30-Jul						28	8.5	0.7	5.0	1 - 7
31-Jul	11	3.4	0.3	1.4	1 - 5	28	8.5	0.7	5.0	1 - 7
31-Jul						26	7.9	0.7	4.6	1 - 7
1-Aug	11	3.4	0.3	1.4	1 - 5	26	7.9	0.7	5.3	1 - 8
2-Aug	11	3.4	0.3	1.4	1 - 5	26	7.9	0.7	5.3	1 - 8
3-Aug	11	3.4	0.3	1.4	1 - 5	26	7.9	0.7	4.6	1 - 7
3-Aug						23	7.0	0.6	4.1	1 - 7
4-Aug	11	3.4	0.3	1.4	1 - 5	23	7.0	0.6	4.1	1 - 7
4-Aug						26	7.9	0.7	4.6	1 - 7
5-Aug	11	3.4	0.3	1.4	1 - 5	26	7.9	0.7	4.6	1 - 7
5-Aug						23	7.0	0.6	4.1	1 - 7
6-Aug	11	3.4	0.3	1.7	1 - 6	23	7.0	0.6	4.1	1 - 7
6-Aug						17	5.2	0.4	3.0	1 - 7
7-Aug	11	3.4	0.3	1.7	1 - 6	17	5.2	0.4	3.0	1 - 7
7-Aug						25	7.6	0.6	4.4	1 - 7
8-Aug	11	3.4	0.3	1.4	1 - 5	25	7.6	0.6	5.1	1 - 8
9-Aug	11	3.4	0.3	1.4	1 - 5	25	7.6	0.6	5.1	1 - 8
10-Aug	11	3.4	0.3	1.4	1 - 5	25	7.6	0.6	5.1	1 - 8
11-Aug	11	3.4	0.3	1.7	1 - 6	25	7.6	0.6	5.1	1 - 8
12-Aug	11	3.4	0.3	1.4	1 - 5	25	7.6	0.6	5.1	1 - 8
13-Aug	11	3.4	0.3	1.7	1 - 6	25	7.6	0.6	4.4	1 - 7
14-Aug	11	3.4	0.3	1.7	1 - 6	25	7.6	0.6	5.1	1 - 8
15-Aug	11	3.4	0.3	1.7	1 - 6	25	7.6	0.6	5.1	1 - 8
16-Aug	11	3.4	0.3	1.4	1 - 5	25	7.6	0.6	5.1	1 - 8
Average	7.4	m				Average	10.7	m	5.5	



## **APPENDIX C. CRESCENT RIVER**

**Appendix C1.**—Estimated salmon escapement adjacent to the north bank of the Crescent River, 24 June through 5 August, 2004.

Date	Sockeye		Pink		Chum		Coho		Chinook		Dolly Varden	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
24-Jun	1,533	1,533	0	0	0	0	0	0	0	0	0	0
25-Jun	995	2,528	0	0	0	0	0	0	47	47	0	0
26-Jun	837	3,365	0	0	0	0	0	0	0	47	0	0
27-Jun	1,254	4,619	0	0	97	97	0	0	0	47	0	0
28-Jun	1,739	6,358	0	0	0	97	0	0	0	47	0	0
29-Jun	2,839	9,197	0	0	0	97	0	0	0	47	0	0
30-Jun	658	9,855	0	0	0	97	0	0	0	47	0	0
1-Jul	971	10,826	0	0	0	97	0	0	0	47	0	0
2-Jul	1,831	12,657	0	0	0	97	0	0	0	47	0	0
3-Jul	2,269	14,926	0	0	0	97	0	0	0	47	0	0
4-Jul	1,929	16,855	0	0	0	97	0	0	0	47	0	0
5-Jul	1,345	18,200	0	0	0	97	0	0	30	77	0	0
6-Jul	1,413	19,613	0	0	0	97	0	0	0	77	113	113
7-Jul	1,276	20,889	0	0	0	97	0	0	0	77	137	250
8-Jul	1,428	22,317	124	124	0	97	0	0	62	139	186	436
9-Jul	1,292	23,608	56	180	56	153	0	0	0	139	56	492
10-Jul	1,239	24,847	0	180	0	153	0	0	0	139	130	623
11-Jul	2,126	26,972	0	180	0	153	0	0	46	186	46	669
12-Jul	3,279	30,251	0	180	0	153	0	0	0	186	81	750
13-Jul	4,497	34,748	0	180	0	153	0	0	0	186	150	900
14-Jul	5,418	40,166	0	180	61	214	0	0	0	186	183	1,082
15-Jul	2,954	43,120	0	180	0	214	0	0	0	186	169	1,251
16-Jul	1,622	44,742	0	180	0	214	0	0	0	186	0	1,251
17-Jul	1,477	46,219	0	180	0	214	0	0	0	186	0	1,251
18-Jul	1,114	47,333	62	242	0	214	0	0	0	186	0	1,251
19-Jul	909	48,242	0	242	0	214	0	0	79	265	237	1,488
20-Jul	1,348	49,590	12	254	12	226	0	0	0	265	0	1,488
21-Jul	1,044	50,634	0	254	37	263	0	0	0	265	112	1,600
22-Jul	934	51,568	0	254	0	263	0	0	0	265	69	1,669
23-Jul	1,597	53,165	32	286	32	295	0	0	0	265	32	1,701
24-Jul	629	53,794	63	349	31	327	0	0	0	265	31	1,733
25-Jul	570	54,364	0	349	0	327	0	0	0	265	0	1,733
26-Jul	664	55,028	0	349	0	327	0	0	0	265	0	1,733
27-Jul	252	55,280	0	349	0	327	0	0	0	265	0	1,733
28-Jul	493	55,773	0	349	25	351	0	0	25	289	0	1,733
29-Jul	3,010	58,783	0	349	0	351	0	0	0	289	0	1,733
30-Jul	2,003	60,786	40	389	0	351	40	40	40	329	0	1,733
31-Jul	1,097	61,883	103	492	171	523	0	40	34	363	0	1,733
1-Aug	1,264	63,147	95	587	143	666	0	40	0	363	0	1,733
2-Aug	1,065	64,212	91	677	0	666	0	40	0	363	23	1,755
3-Aug	896	65,108	27	704	0	666	0	40	13	377	13	1,769
4-Aug	777	65,886	0	704	28	694	0	40	0	377	28	1,796
5-Aug	459	66,345	46	750	46	740	0	40	0	377	11	1,808

**Appendix C2.**—Estimated salmon escapement adjacent to the south bank of the Crescent River, 24 June through 5 August, 2004.

Date	Sockeye		Pink		Chum		Coho		Chinook		Dolly Varden	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
24-Jun	835	835	0	0	0	0	0	0	0	0	0	0
25-Jun	357	1,192	0	0	0	0	0	0	17	17	0	0
26-Jun	84	1,276	0	0	0	0	0	0	0	17	0	0
27-Jun	505	1,781	0	0	39	39	0	0	0	17	0	0
28-Jun	955	2,736	0	0	0	39	0	0	0	17	0	0
29-Jun	1,184	3,920	0	0	0	39	0	0	0	17	0	0
30-Jun	565	4,485	0	0	0	39	0	0	0	17	0	0
1-Jul	444	4,929	0	0	0	39	0	0	0	17	0	0
2-Jul	1,172	6,101	0	0	0	39	0	0	0	17	0	0
3-Jul	1,141	7,242	0	0	0	39	0	0	0	17	0	0
4-Jul	720	7,962	0	0	0	39	0	0	0	17	0	0
5-Jul	1,341	9,303	0	0	0	39	0	0	30	47	0	0
6-Jul	938	10,241	0	0	0	39	0	0	0	47	75	75
7-Jul	422	10,663	0	0	0	39	0	0	0	47	45	120
8-Jul	560	11,223	49	49	0	39	0	0	24	71	73	193
9-Jul	466	11,689	20	69	20	59	0	0	0	71	20	214
10-Jul	436	12,125	0	69	0	59	0	0	0	71	46	259
11-Jul	1,235	13,360	0	69	0	59	0	0	27	98	27	286
12-Jul	1,568	14,929	0	69	0	59	0	0	0	98	39	325
13-Jul	2,530	17,458	0	69	0	59	0	0	0	98	84	409
14-Jul	1,991	19,449	0	69	22	81	0	0	0	98	67	476
15-Jul	1,609	21,058	0	69	0	81	0	0	0	98	92	568
16-Jul	1,076	22,134	0	69	0	81	0	0	0	98	0	568
17-Jul	966	23,100	0	69	0	81	0	0	0	98	0	568
18-Jul	1,349	24,449	75	144	0	81	0	0	0	98	0	568
19-Jul	1,375	25,824	0	144	0	81	0	0	120	218	359	927
20-Jul	1,042	26,866	10	153	10	91	0	0	0	218	0	927
21-Jul	780	27,645	0	153	28	119	0	0	0	218	84	1,011
22-Jul	723	28,369	0	153	0	119	0	0	0	218	54	1,064
23-Jul	1,342	29,711	27	180	27	146	0	0	0	218	27	1,091
24-Jul	482	30,193	48	228	24	170	0	0	0	218	24	1,115
25-Jul	448	30,641	0	228	0	170	0	0	0	218	0	1,115
26-Jul	315	30,956	0	228	0	170	0	0	0	218	0	1,115
27-Jul	80	31,036	0	228	0	170	0	0	0	218	0	1,115
28-Jul	228	31,264	0	228	11	181	0	0	11	229	0	1,115
29-Jul	1,719	32,983	0	228	0	181	0	0	0	229	0	1,115
30-Jul	588	33,571	12	240	0	181	12	12	12	241	0	1,115
31-Jul	486	34,058	46	285	76	257	0	12	15	256	0	1,115
1-Aug	702	34,760	53	338	80	337	0	12	0	256	0	1,115
2-Aug	640	35,400	55	393	0	337	0	12	0	256	14	1,129
3-Aug	561	35,961	17	410	0	337	0	12	8	264	8	1,137
4-Aug	501	36,462	0	410	18	355	0	12	0	264	18	1,155
5-Aug	393	36,856	39	449	39	394	0	12	0	264	10	1,165

Appendix C3.—Crescent River north bank sonar counts by hour, 24 June through 5 August, 2004.

Date	Counts by Hour																								Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Total
24-Jun	35	3	12	46	11	17	10	55	108	93	30	25	58	107	125	51	118	164	110	96	155	29	52	23	1,533	1,533
25-Jun	11	10	15	31	63	72	50	39	102	83	80	100	47	30	45	30	18	71	44	33	26	32	7	3	1,042	2,575
26-Jun	10	31	14	44	41	20	23	29	56	57	62	52	59	40	61	47	50	35	49	29	17	7	3	1	837	3,412
27-Jun	3	3	13	59	56	57	56	0	12	18	55	41	51	60	63	120	275	97	64	57	88	56	26	21	1,351	4,763
28-Jun	1	18	79	16	15	72	71	28	3	90	72	56	52	70	165	136	192	207	74	75	72	72	72	31	1,739	6,502
29-Jun	13	51	86	111	111	113	113	112	119	216	235	260	248	273	92	86	33	152	112	120	70	70	26	17	2,839	9,341
30-Jun	2	6	1	8	2	26	28	22	25	29	47	16	24	28	8	5	28	13	69	153	23	37	49	9	658	9,999
01-Jul	27	5	1	1	3	31	40	35	102	17	31	49	26	37	191	21	54	12	30	51	63	106	8	30	971	10,970
02-Jul	24	12	4	16	57	64	50	16	56	12	8	21	20	76	76	52	67	94	173	93	306	196	161	177	1,831	12,801
03-Jul	34	66	24	19	89	82	94	97	126	62	71	36	37	34	82	12	28	12	38	491	360	146	109	120	2,269	15,070
04-Jul	84	78	46	43	34	73	65	45	127	120	92	43	47	30	17	20	12	5	9	171	325	191	131	121	1,929	16,999
05-Jul	81	19	26	43	220	59	25	37	64	160	69	105	40	30	29	12	9	14	13	4	51	77	57	131	1,375	18,374
06-Jul	38	30	43	10	12	26	48	109	109	213	181	100	45	35	14	4	9	2	2	6	10	124	214	142	1,526	19,900
07-Jul	31	26	34	40	51	26	58	112	73	100	107	132	95	52	54	52	28	27	42	13	49	19	78	114	1,413	21,313
08-Jul	206	150	109	54	50	71	90	135	160	62	61	100	93	145	117	27	34	27	15	10	8	6	2	68	1,800	23,113
09-Jul	80	86	36	34	25	24	74	68	88	89	110	54	67	121	107	149	56	52	35	22	46	25	3	9	1,460	24,573
10-Jul	42	64	69	58	50	56	28	20	91	83	63	77	75	23	81	108	77	96	40	91	28	8	16	25	1,369	25,942
11-Jul	6	17	26	29	37	65	60	103	79	95	92	83	124	161	177	126	263	190	200	123	80	63	13	6	2,218	28,160
12-Jul	11	37	54	7	26	11	28	30	30	57	129	259	254	168	54	136	402	473	410	295	142	215	60	72	3,360	31,520
13-Jul	83	169	194	143	63	148	150	95	31	74	79	122	121	260	174	145	252	782	668	490	232	85	50	37	4,647	36,167
14-Jul	74	180	51	105	105	85	259	214	156	111	158	275	342	304	209	125	92	834	754	524	216	166	147	175	5,661	41,828
15-Jul	98	61	41	107	21	98	70	99	82	145	122	56	72	60	52	22	61	208	555	531	197	235	74	56	3,123	44,951
16-Jul	16	13	10	8	29	64	112	62	94	58	93	100	25	19	40	8	10	32	225	267	155	92	78	12	1,622	46,573
17-Jul	37	5	23	2	13	15	46	44	67	51	35	69	78	92	20	25	14	47	42	171	238	167	149	27	1,477	48,050
18-Jul	11	12	51	26	5	2	56	29	45	74	104	78	112	71	86	40	24	36	13	44	108	66	47	36	1,176	49,226
19-Jul	35	40	21	17	16	33	51	50	87	124	106	122	130	31	40	23	18	11	8	32	108	65	40	17	1,225	50,451
20-Jul	15	33	25	7	5	19	97	58	203	164	80	62	51	26	14	6	9	5	50	4	135	159	113	33	1,373	51,824
21-Jul	54	26	48	5	6	7	24	34	83	145	109	68	48	66	22	12	6	6	9	12	56	152	118	77	1,193	53,017
22-Jul	20	24	46	24	48	115	135	26	57	69	76	24	57	47	63	13	6	2	4	5	18	23	40	61	1,003	54,020
23-Jul	20	28	71	34	23	41	129	72	138	81	83	232	197	82	67	20	33	20	2	13	3	39	146	119	1,693	55,713
24-Jul	39	66	27	26	24	80	50	29	16	4	8	29	27	2	4	1	0	8	4	4	3	37	134	133	755	56,468
25-Jul	19	18	6	11	17	29	60	36	14	6	7	9	40	20	8	66	39	29	34	11	8	11	50	22	570	57,038
26-Jul	31	75	54	47	29	19	26	21	30	23	48	15	32	20	9	22	29	13	20	9	20	18	27	27	664	57,702
27-Jul	10	10	10	10	10	10	10	9	7	8	10	15	10	16	10	18	10	10	15	10	8	10	6	10	252	57,954
28-Jul	14	6	21	10	21	14	22	19	22	21	24	36	33	27	34	24	29	29	23	33	25	25	16	14	542	58,496
29-Jul	14	9	7	53	14	89	102	130	139	239	287	434	280	183	186	153	143	142	99	142	53	72	22	18	3,010	61,506
30-Jul	7	6	7	0	13	76	60	48	50	50	42	24	78	180	236	218	178	139	276	193	109	66	26	41	2,123	63,629
31-Jul	18	30	22	11	8	52	46	60	49	58	51	28	96	223	115	71	72	49	68	64	60	71	40	43	1,405	65,034
1-Aug	9	64	16	6	32	42	32	32	67	136	37	174	171	221	31	65	54	29	30	68	53	66	23	44	1,502	66,536
2-Aug	46	51	19	43	34	38	47	45	39	71	65	92	58	87	53	72	51	45	32	35	14	41	58	42	1,178	67,714
3-Aug	29	37	31	44	30	29	38	37	56	61	51	58	59	43	28	13	23	55	34	35	34	30	48	47	950	68,664
4-Aug	37	16	27	30	22	42	34	32	34	52	40	32	33	36	37	38	38	34	29	36	27	29	41	57	833	69,497
5-Aug	28	28	23	17	19	31	26	28	28	39	45	24	42	15	10	19	12	23	8	14	14	23	23	23	562	70,059
Total	1,503	1,719	1,543	1,455	1,560	2,143	2,693	2,401	3,124	3,520	3,355	3,787	3,654	3,651	3,106	2,413	2,956	4,331	4,531	4,680	3,813	3,227	2,603	2,291	70,059	

Appendix C4.—Crescent River south bank sonar counts by hour, 24 June through 5 August, 2004.

Date	Counts by Hour																								Daily Total	Cum Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
24-Jun	1	0	0	0	0	2	2	1	22	33	3	13	78	251	185	33	49	37	8	35	78	0	3	1	835	835
25-Jun	0	0	18	9	29	11	0	5	24	56	27	56	47	36	20	19	8	2	3	2	2	0	0	0	374	1,209
26-Jun	0	1	0	0	0	0	0	0	1	2	8	14	8	9	3	5	9	5	7	10	0	0	2	0	84	1,293
27-Jun	0	0	0	0	0	1	0	1	0	4	0	3	0	1	22	78	189	100	63	39	41	2	0	0	544	1,837
28-Jun	0	0	1	0	10	4	2	1	0	0	5	21	25	13	98	174	149	190	153	43	14	0	39	13	955	2,792
29-Jun	33	50	41	4	57	27	16	16	96	145	94	105	105	42	58	43	37	86	64	31	9	15	1	9	1,184	3,976
30-Jun	13	13	13	13	13	13	18	5	15	28	12	5	15	19	18	18	47	101	114	37	18	8	8	1	565	4,541
01-Jul	4	0	0	0	0	4	3	6	24	7	30	40	39	9	27	5	8	7	50	58	54	35	23	11	444	4,985
02-Jul	7	14	3	6	17	11	51	46	49	52	54	58	46	26	29	15	4	9	224	202	110	50	35	54	1,172	6,157
03-Jul	26	8	1	8	20	8	25	71	90	92	63	28	25	45	31	19	30	9	22	201	143	68	54	54	1,141	7,298
04-Jul	40	9	0	6	11	24	13	12	39	72	37	47	21	19	26	6	5	5	8	57	117	75	35	36	720	8,018
05-Jul	16	7	4	13	19	35	34	48	149	129	124	93	78	88	26	21	10	4	10	5	78	213	123	44	1,371	9,389
06-Jul	5	13	22	13	6	25	36	75	106	111	44	84	54	23	17	12	21	21	11	8	21	102	128	55	1,013	10,402
07-Jul	9	16	3	7	10	21	4	5	31	73	26	14	42	63	28	28	9	13	6	6	3	6	18	26	467	10,869
08-Jul	21	12	9	13	17	56	55	80	57	58	49	26	34	43	42	15	42	25	5	2	13	3	22	7	706	11,575
09-Jul	6	23	14	28	9	8	27	37	32	56	42	29	21	34	36	29	9	22	25	33	6	1	0	0	527	12,102
10-Jul	10	8	6	4	12	26	5	2	13	22	33	37	49	51	31	55	35	31	23	9	11	5	4	0	482	12,584
11-Jul	0	0	54	54	54	54	54	3	1	5	54	33	203	160	66	83	82	89	131	42	33	9	21	4	1,289	13,873
12-Jul	2	6	4	0	8	2	33	48	72	103	91	71	191	133	76	117	232	192	125	57	33	4	2	5	1,607	15,480
13-Jul	0	2	8	6	13	40	39	11	21	82	50	221	323	288	260	115	194	473	363	66	22	16	0	1	2,614	18,094
14-Jul	2	0	1	0	17	60	37	38	57	118	174	196	118	98	85	35	51	267	387	171	91	41	28	8	2,080	20,174
15-Jul	8	10	4	4	30	42	71	80	118	100	97	57	62	30	50	41	81	58	242	222	140	56	26	72	1,701	21,875
16-Jul	5	6	4	7	33	40	66	59	66	30	38	24	12	13	8	11	69	61	168	103	111	91	36	15	1,076	22,951
17-Jul	23	9	22	8	9	38	42	74	69	80	43	17	13	12	16	11	8	3	12	159	143	101	32	22	966	23,917
18-Jul	4	5	27	46	3	7	7	45	61	114	129	47	31	36	44	0	33	75	18	127	232	154	127	52	1,424	25,341
19-Jul	16	86	85	54	13	1	54	152	192	245	216	105	73	34	9	9	12	6	6	127	268	57	22	11	1,853	27,194
20-Jul	3	18	13	28	6	36	52	62	150	106	41	31	16	10	8	7	20	8	7	59	84	165	119	12	1,061	28,255
21-Jul	44	21	14	5	0	10	15	25	87	163	60	52	46	15	15	4	5	5	10	48	75	36	96	40	891	29,146
22-Jul	32	22	15	80	29	35	24	18	28	47	30	30	26	19	17	19	9	2	0	0	2	26	144	123	777	29,923
23-Jul	73	13	25	30	32	54	108	132	117	86	57	104	142	49	46	47	25	24	7	3	14	63	117	55	1,423	31,346
24-Jul	41	22	25	22	17	43	36	44	10	11	3	48	23	23	15	4	0	5	1	2	3	24	86	70	578	31,924
25-Jul	19	48	48	77	17	21	20	36	18	18	20	14	6	1	11	33	9	1	5	0	4	5	12	5	448	32,372
26-Jul	8	24	22	14	7	31	27	31	19	32	18	14	8	9	10	8	11	3	1	7	10	1	0	0	315	32,687
27-Jul	0	2	1	0	6	4	0	0	3	0	0	0	0	9	1	22	2	11	5	2	1	3	2	6	80	32,767
28-Jul	10	5	3	5	6	0	3	0	6	1	7	3	4	3	15	4	39	22	29	9	18	34	16	9	251	33,018
29-Jul	0	0	0	0	0	0	71	71	71	185	214	238	228	137	113	71	62	29	116	48	40	17	8	0	1,719	34,737
30-Jul	26	26	26	26	15	55	26	21	24	40	26	26	26	26	37	26	26	26	26	26	48	5	5	9	623	35,360
31-Jul	8	5	4	6	5	8	7	21	12	36	28	41	25	47	59	35	15	9	18	29	74	58	47	26	623	35,983
1-Aug	36	35	45	52	32	23	29	7	15	44	18	40	49	15	30	27	19	14	37	154	54	35	13	12	835	36,818
2-Aug	18	7	20	14	40	27	54	46	50	58	54	33	10	52	29	41	9	8	10	47	50	21	11	0	709	37,527
3-Aug	5	16	45	56	41	18	2	2	3	14	65	50	44	28	28	2	0	1	1	7	2	24	10	18	482	38,009
4-Aug	19	3	11	9	13	32	48	13	14	27	25	9	16	45	18	6	4	6	3	12	55	94	45	10	537	38,546
5-Aug	6	9	5	0	6	30	21	55	73	45	39	21	60	24	13	8	19	9	3	4	68	39	22	15	594	39,140
Total	599	574	666	727	682	987	1,237	1,505	2,105	2,730	2,248	2,198	2,442	2,088	1,776	1,361	1,697	2,074	2,527	2,309	2,393	1,762	1,542	911	39,140	

**Appendix C5.**—Percentage of daily total Crescent River north bank sonar counts by hour, 24 June through 5 August, 2004.

Date	Counts by Hour																								Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
24-Jun	2.3	0.2	0.8	3.0	0.7	1.1	0.7	3.6	7.0	6.1	2.0	1.6	3.8	7.0	8.2	3.3	7.7	10.7	7.2	6.3	10.1	1.9	3.4	1.5	100
25-Jun	1.1	1.0	1.4	3.0	6.0	6.9	4.8	3.7	9.8	8.0	7.7	9.6	4.5	2.9	4.3	2.9	1.7	6.8	4.2	3.2	2.5	3.1	0.7	0.3	100
26-Jun	1.2	3.7	1.7	5.3	4.9	2.4	2.7	3.5	6.7	6.8	7.4	6.2	7.0	4.8	7.3	5.6	6.0	4.2	5.9	3.5	2.0	0.8	0.4	0.1	100
27-Jun	0.2	0.2	1.0	4.4	4.1	4.2	4.1	0.0	0.9	1.3	4.1	3.0	3.8	4.4	4.7	8.9	20.4	7.2	4.7	4.2	6.5	4.1	1.9	1.6	100
28-Jun	0.1	1.0	4.5	0.9	0.9	4.1	4.1	1.6	0.2	5.2	4.1	3.2	3.0	4.0	9.5	7.8	11.0	11.9	4.3	4.3	4.1	4.1	4.1	1.8	100
29-Jun	0.5	1.8	3.0	3.9	3.9	4.0	4.0	3.9	4.2	7.6	8.3	9.2	8.7	9.6	3.2	3.0	1.2	5.4	3.9	4.2	2.5	2.5	0.9	0.6	100
30-Jun	0.3	0.9	0.2	1.2	0.3	4.0	4.3	3.3	3.8	4.4	7.1	2.4	3.6	4.3	1.2	0.8	4.3	2.0	10.5	23.3	3.5	5.6	7.4	1.4	100
1-Jul	2.8	0.5	0.1	0.1	0.3	3.2	4.1	3.6	10.5	1.8	3.2	5.0	2.7	3.8	19.7	2.2	5.6	1.2	3.1	5.3	6.5	10.9	0.8	3.1	100
2-Jul	1.3	0.7	0.2	0.9	3.1	3.5	2.7	0.9	3.1	0.7	0.4	1.1	1.1	4.2	4.2	2.8	3.7	5.1	9.4	5.1	16.7	10.7	8.8	9.7	100
3-Jul	1.5	2.9	1.1	0.8	3.9	3.6	4.1	4.3	5.6	2.7	3.1	1.6	1.6	1.5	3.6	0.5	1.2	0.5	1.7	21.6	15.9	6.4	4.8	5.3	100
4-Jul	4.4	4.0	2.4	2.2	1.8	3.8	3.4	2.3	6.6	6.2	4.8	2.2	2.4	1.6	0.9	1.0	0.6	0.3	0.5	8.9	16.8	9.9	6.8	6.3	100
5-Jul	5.9	1.4	1.9	3.1	16.0	4.3	1.8	2.7	4.7	11.6	5.0	7.6	2.9	2.2	2.1	0.9	0.7	1.0	0.9	0.3	3.7	5.6	4.1	9.5	100
6-Jul	2.5	2.0	2.8	0.7	0.8	1.7	3.1	7.1	7.1	14.0	11.9	6.6	2.9	2.3	0.9	0.3	0.6	0.1	0.1	0.4	0.7	8.1	14.0	9.3	100
7-Jul	2.2	1.8	2.4	2.8	3.6	1.8	4.1	7.9	5.2	7.1	7.6	9.3	6.7	3.7	3.8	3.7	2.0	1.9	3.0	0.9	3.5	1.3	5.5	8.1	100
8-Jul	11.4	8.3	6.1	3.0	2.8	3.9	5.0	7.5	8.9	3.4	3.4	5.6	5.2	8.1	6.5	1.5	1.9	1.5	0.8	0.6	0.4	0.3	0.1	3.8	100
9-Jul	5.5	5.9	2.5	2.3	1.7	1.6	5.1	4.7	6.0	6.1	7.5	3.7	4.6	8.3	7.3	10.2	3.8	3.6	2.4	1.5	3.2	1.7	0.2	0.6	100
10-Jul	3.1	4.7	5.0	4.2	3.7	4.1	2.0	1.5	6.6	6.1	4.6	5.6	5.5	1.7	5.9	7.9	5.6	7.0	2.9	6.6	2.0	0.6	1.2	1.8	100
11-Jul	0.3	0.8	1.2	1.3	1.7	2.9	2.7	4.6	3.6	4.3	4.1	3.7	5.6	7.3	8.0	5.7	11.9	8.6	9.0	5.5	3.6	2.8	0.6	0.3	100
12-Jul	0.3	1.1	1.6	0.2	0.8	0.3	0.8	0.9	0.9	1.7	3.8	7.7	7.6	5.0	1.6	4.0	12.0	14.1	12.2	8.8	4.2	6.4	1.8	2.1	100
13-Jul	1.8	3.6	4.2	3.1	1.4	3.2	3.2	2.0	0.7	1.6	1.7	2.6	2.6	5.6	3.7	3.1	5.4	16.8	14.4	10.5	5.0	1.8	1.1	0.8	100
14-Jul	1.3	3.2	0.9	1.9	1.9	1.5	4.6	3.8	2.8	2.0	2.8	4.9	6.0	5.4	3.7	2.2	1.6	14.7	13.3	9.3	3.8	2.9	2.6	3.1	100
15-Jul	3.1	2.0	1.3	3.4	0.7	3.1	2.2	3.2	2.6	4.6	3.9	1.8	2.3	1.9	1.7	0.7	2.0	6.7	17.8	17.0	6.3	7.5	2.4	1.8	100
16-Jul	1.0	0.8	0.6	0.5	1.8	3.9	6.9	3.8	5.8	3.6	5.7	6.2	1.5	1.2	2.5	0.5	0.6	2.0	13.9	16.5	9.6	5.7	4.8	0.7	100
17-Jul	2.5	0.3	1.6	0.1	0.9	1.0	3.1	3.0	4.5	3.5	2.4	4.7	5.3	6.2	1.4	1.7	0.9	3.2	2.8	11.6	16.1	11.3	10.1	1.8	100
18-Jul	0.9	1.0	4.3	2.2	0.4	0.2	4.8	2.5	3.8	6.3	8.8	6.6	9.5	6.0	7.3	3.4	2.0	3.1	1.1	3.7	9.2	5.6	4.0	3.1	100
19-Jul	2.9	3.3	1.7	1.4	1.3	2.7	4.2	4.1	7.1	10.1	8.7	10.0	10.6	2.5	3.3	1.9	1.5	0.9	0.7	2.6	8.8	5.3	3.3	1.4	100
20-Jul	1.1	2.4	1.8	0.5	0.4	1.4	7.1	4.2	14.8	11.9	5.8	4.5	3.7	1.9	1.0	0.4	0.7	0.4	3.6	0.3	9.8	11.6	8.2	2.4	100
21-Jul	4.5	2.2	4.0	0.4	0.5	0.6	2.0	2.8	7.0	12.2	9.1	5.7	4.0	5.5	1.8	1.0	0.5	0.5	0.8	1.0	4.7	12.7	9.9	6.5	100
22-Jul	2.0	2.4	4.6	2.4	4.8	11.5	13.5	2.6	5.7	6.9	7.6	2.4	5.7	4.7	6.3	1.3	0.6	0.2	0.4	0.5	1.8	2.3	4.0	6.1	100
23-Jul	1.2	1.7	4.2	2.0	1.4	2.4	7.6	4.3	8.2	4.8	4.9	13.7	11.6	4.8	4.0	1.2	1.9	1.2	0.1	0.8	0.2	2.3	8.6	7.0	100
24-Jul	5.2	8.7	3.6	3.4	3.2	10.6	6.6	3.8	2.1	0.5	1.1	3.8	3.6	0.3	0.5	0.1	0.0	1.1	0.5	0.5	0.4	4.9	17.7	17.6	100
25-Jul	3.3	3.2	1.1	1.9	3.0	5.1	10.5	6.3	2.5	1.1	1.2	1.6	7.0	3.5	1.4	11.6	6.8	5.1	6.0	1.9	1.4	1.9	8.8	3.9	100
26-Jul	4.7	11.3	8.1	7.1	4.4	2.9	3.9	3.2	4.5	3.5	7.2	2.3	4.8	3.0	1.4	3.3	4.4	2.0	3.0	1.4	3.0	2.7	4.1	4.1	100

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Appendix C5.–Page 2 of 2.

Date	Counts by Hour																								Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
27-Jul	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.6	2.8	3.2	4.0	6.0	4.0	6.3	4.0	7.1	4.0	4.0	6.0	4.0	3.2	4.0	2.4	4.0	100
28-Jul	2.6	1.1	3.9	1.8	3.9	2.6	4.1	3.5	4.1	3.9	4.4	6.6	6.1	5.0	6.3	4.4	5.4	5.4	4.2	6.1	4.6	4.6	3.0	2.6	100
29-Jul	0.5	0.3	0.2	1.8	0.5	3.0	3.4	4.3	4.6	7.9	9.5	14.4	9.3	6.1	6.2	5.1	4.8	4.7	3.3	4.7	1.8	2.4	0.7	0.6	100
30-Jul	0.3	0.3	0.3	0.0	0.6	3.6	2.8	2.3	2.4	2.4	2.0	1.1	3.7	8.5	11.1	10.3	8.4	6.5	13.0	9.1	5.1	3.1	1.2	1.9	100
31-Jul	1.3	2.1	1.6	0.8	0.6	3.7	3.3	4.3	3.5	4.1	3.6	2.0	6.8	15.9	8.2	5.1	5.1	3.5	4.8	4.6	4.3	5.1	2.8	3.1	100
1-Aug	0.6	4.3	1.1	0.4	2.1	2.8	2.1	2.1	4.5	9.1	2.5	11.6	11.4	14.7	2.1	4.3	3.6	1.9	2.0	4.5	3.5	4.4	1.5	2.9	100
2-Aug	3.9	4.3	1.6	3.7	2.9	3.2	4.0	3.8	3.3	6.0	5.5	7.8	4.9	7.4	4.5	6.1	4.3	3.8	2.7	3.0	1.2	3.5	4.9	3.6	100
3-Aug	3.1	3.9	3.3	4.6	3.2	3.1	4.0	3.9	5.9	6.4	5.4	6.1	6.2	4.5	2.9	1.4	2.4	5.8	3.6	3.7	3.6	3.2	5.1	4.9	100
4-Aug	4.4	1.9	3.2	3.6	2.6	5.0	4.1	3.8	4.1	6.2	4.8	3.8	4.0	4.3	4.4	4.6	4.6	4.1	3.5	4.3	3.2	3.5	4.9	6.8	100
5-Aug	5.0	5.0	4.1	3.0	3.4	5.5	4.6	5.0	5.0	6.9	8.0	4.3	7.5	2.7	1.8	3.4	2.1	4.1	1.4	2.5	2.5	4.1	4.1	4.1	100
Total	2.1	2.5	2.2	2.1	2.2	3.1	3.8	3.4	4.5	5.0	4.8	5.4	5.2	5.2	4.4	3.4	4.2	6.2	6.5	6.7	5.4	4.6	3.7	3.3	100

**Appendix C6.—Percentage of daily total Crescent River south bank sonar counts by hour, 24 June through 5 August, 2004.**

Date	Counts by Hour																								Daily Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
24-Jun	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.1	2.6	4.0	0.4	1.6	9.3	30.1	22.2	4.0	5.9	4.4	1.0	4.2	9.3	0.0	0.4	0.1	100
25-Jun	0.0	0.0	4.8	2.4	7.8	2.9	0.0	1.3	6.4	15.0	7.2	15.0	12.6	9.6	5.3	5.1	2.1	0.5	0.8	0.5	0.5	0.0	0.0	0.0	100
26-Jun	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	1.2	2.4	9.5	16.7	9.5	10.7	3.6	6.0	10.7	6.0	8.3	11.9	0.0	0.0	2.4	0.0	100
27-Jun	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.7	0.0	0.6	0.0	0.2	4.0	14.3	34.7	18.4	11.6	7.2	7.5	0.4	0.0	0.0	100
28-Jun	0.0	0.0	0.1	0.0	1.0	0.4	0.2	0.1	0.0	0.0	0.5	2.2	2.6	1.4	10.3	18.2	15.6	19.9	16.0	4.5	1.5	0.0	4.1	1.4	100
29-Jun	2.8	4.2	3.5	0.3	4.8	2.3	1.4	1.4	8.1	12.2	7.9	8.9	8.9	3.5	4.9	3.6	3.1	7.3	5.4	2.6	0.8	1.3	0.1	0.8	100
30-Jun	2.3	2.3	2.3	2.3	2.3	2.3	3.2	0.9	2.7	5.0	2.1	0.9	2.7	3.4	3.2	3.2	8.3	17.9	20.2	6.5	3.2	1.4	1.4	0.2	100
1-Jul	0.9	0.0	0.0	0.0	0.0	0.9	0.7	1.4	5.4	1.6	6.8	9.0	8.8	2.0	6.1	1.1	1.8	1.6	11.3	13.1	12.2	7.9	5.2	2.5	100
2-Jul	0.6	1.2	0.3	0.5	1.5	0.9	4.4	3.9	4.2	4.4	4.6	4.9	3.9	2.2	2.5	1.3	0.3	0.8	19.1	17.2	9.4	4.3	3.0	4.6	100
3-Jul	2.3	0.7	0.1	0.7	1.8	0.7	2.2	6.2	7.9	8.1	5.5	2.5	2.2	3.9	2.7	1.7	2.6	0.8	1.9	17.6	12.5	6.0	4.7	4.7	100
4-Jul	5.6	1.2	0.0	0.8	1.5	3.3	1.8	1.7	5.4	10.0	5.1	6.5	2.9	2.6	3.6	0.8	0.7	0.7	1.1	7.9	16.2	10.4	4.9	5.0	100
5-Jul	1.2	0.5	0.3	0.9	1.4	2.6	2.5	3.5	10.9	9.4	9.0	6.8	5.7	6.4	1.9	1.5	0.7	0.3	0.7	0.4	5.7	15.5	9.0	3.2	100
6-Jul	0.5	1.3	2.2	1.3	0.6	2.5	3.6	7.4	10.5	11.0	4.3	8.3	5.3	2.3	1.7	1.2	2.1	2.1	1.1	0.8	2.1	10.1	12.6	5.4	100
7-Jul	1.9	3.4	0.6	1.5	2.1	4.5	0.9	1.1	6.6	15.6	5.6	3.0	9.0	13.5	6.0	6.0	1.9	2.8	1.3	1.3	0.6	1.3	3.9	5.6	100
8-Jul	3.0	1.7	1.3	1.8	2.4	7.9	7.8	11.3	8.1	8.2	6.9	3.7	4.8	6.1	5.9	2.1	5.9	3.5	0.7	0.3	1.8	0.4	3.1	1.0	100
9-Jul	1.1	4.4	2.7	5.3	1.7	1.5	5.1	7.0	6.1	10.6	8.0	5.5	4.0	6.5	6.8	5.5	1.7	4.2	4.7	6.3	1.1	0.2	0.0	0.0	100
10-Jul	2.1	1.7	1.2	0.8	2.5	5.4	1.0	0.4	2.7	4.6	6.8	7.7	10.2	10.6	6.4	11.4	7.3	6.4	4.8	1.9	2.3	1.0	0.8	0.0	100
11-Jul	0.0	0.0	4.2	4.2	4.2	4.2	4.2	0.2	0.1	0.4	4.2	2.6	15.7	12.4	5.1	6.4	6.4	6.9	10.2	3.3	2.6	0.7	1.6	0.3	100
12-Jul	0.1	0.4	0.2	0.0	0.5	0.1	2.1	3.0	4.5	6.4	5.7	4.4	11.9	8.3	4.7	7.3	14.4	11.9	7.8	3.5	2.1	0.2	0.1	0.3	100
13-Jul	0.0	0.1	0.3	0.2	0.5	1.5	1.5	0.4	0.8	3.1	1.9	8.5	12.4	11.0	9.9	4.4	7.4	18.1	13.9	2.5	0.8	0.6	0.0	0.0	100
14-Jul	0.1	0.0	0.0	0.0	0.8	2.9	1.8	1.8	2.7	5.7	8.4	9.4	5.7	4.7	4.1	1.7	2.5	12.8	18.6	8.2	4.4	2.0	1.3	0.4	100
15-Jul	0.5	0.6	0.2	0.2	1.8	2.5	4.2	4.7	6.9	5.9	5.7	3.4	3.6	1.8	2.9	2.4	4.8	3.4	14.2	13.1	8.2	3.3	1.5	4.2	100
16-Jul	0.5	0.6	0.4	0.7	3.1	3.7	6.1	5.5	6.1	2.8	3.5	2.2	1.1	1.2	0.7	1.0	6.4	5.7	15.6	9.6	10.3	8.5	3.3	1.4	100
17-Jul	2.4	0.9	2.3	0.8	0.9	3.9	4.3	7.7	7.1	8.3	4.5	1.8	1.3	1.2	1.7	1.1	0.8	0.3	1.2	16.5	14.8	10.5	3.3	2.3	100
18-Jul	0.3	0.4	1.9	3.2	0.2	0.5	0.5	3.2	4.3	8.0	9.1	3.3	2.2	2.5	3.1	0.0	2.3	5.3	1.3	8.9	16.3	10.8	8.9	3.7	100
19-Jul	0.9	4.6	4.6	2.9	0.7	0.1	2.9	8.2	10.4	13.2	11.7	5.7	3.9	1.8	0.5	0.5	0.6	0.3	0.3	6.9	14.5	3.1	1.2	0.6	100
20-Jul	0.3	1.7	1.2	2.6	0.6	3.4	4.9	5.8	14.1	10.0	3.9	2.9	1.5	0.9	0.8	0.7	1.9	0.8	0.7	5.6	7.9	15.6	11.2	1.1	100
21-Jul	4.9	2.4	1.6	0.6	0.0	1.1	1.7	2.8	9.8	18.3	6.7	5.8	5.2	1.7	1.7	0.4	0.6	0.6	1.1	5.4	8.4	4.0	10.8	4.5	100
22-Jul	4.1	2.8	1.9	10.3	3.7	4.5	3.1	2.3	3.6	6.0	3.9	3.9	3.3	2.4	2.2	2.4	1.2	0.3	0.0	0.0	0.3	3.3	18.5	15.8	100
23-Jul	5.1	0.9	1.8	2.1	2.2	3.8	7.6	9.3	8.2	6.0	4.0	7.3	10.0	3.4	3.2	3.3	1.8	1.7	0.5	0.2	1.0	4.4	8.2	3.9	100
24-Jul	7.1	3.8	4.3	3.8	2.9	7.4	6.2	7.6	1.7	1.9	0.5	8.3	4.0	4.0	2.6	0.7	0.0	0.9	0.2	0.3	0.5	4.2	14.9	12.1	100
25-Jul	4.2	10.7	10.7	17.2	3.8	4.7	4.5	8.0	4.0	4.0	4.5	3.1	1.3	0.2	2.5	7.4	2.0	0.2	1.1	0.0	0.9	1.1	2.7	1.1	100
26-Jul	2.5	7.6	7.0	4.4	2.2	9.8	8.6	9.8	6.0	10.2	5.7	4.4	2.5	2.9	3.2	2.5	3.5	1.0	0.3	2.2	3.2	0.3	0.0	0.0	100
27-Jul	0.0	2.5	1.2	0.0	7.5	5.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	11.2	1.2	27.5	2.5	13.8	6.2	2.5	1.2	3.8	2.5	7.5	100
28-Jul	4.0	2.0	1.2	2.0	2.4	0.0	1.2	0.0	2.4	0.4	2.8	1.2	1.6	1.2	6.0	1.6	15.5	8.8	11.6	3.6	7.2	13.5	6.4	3.6	100
29-Jul	0.0	0.0	0.0	0.0	0.0	0.0	4.1	4.1	4.1	10.8	12.4	13.8	13.3	8.0	6.6	4.1	3.6	1.7	6.7	2.8	2.3	1.0	0.5	0.0	100
30-Jul	4.2	4.2	4.2	4.2	2.4	8.8	4.2	3.4	3.9	6.4	4.2	4.2	4.2	4.2	5.9	4.2	4.2	4.2	4.2	4.2	7.7	0.8	0.8	1.4	100
31-Jul	1.3	0.8	0.6	1.0	0.8	1.3	1.1	3.4	1.9	5.8	4.5	6.6	4.0	7.5	9.5	5.6	2.4	1.4	2.9	4.7	11.9	9.3	7.5	4.2	100
1-Aug	4.3	4.2	5.4	6.2	3.8	2.8	3.5	0.8	1.8	5.3	2.2	4.8	5.9	1.8	3.6	3.2	2.3	1.7	4.4	18.4	6.5	4.2	1.6	1.4	100
2-Aug	2.5	1.0	2.8	2.0	5.6	3.8	7.6	6.5	7.1	8.2	7.6	4.7	1.4	7.3	4.1	5.8	1.3	1.1	1.4	6.6	7.1	3.0	1.6	0.0	100
3-Aug	1.0	3.3	9.3	11.6	8.5	3.7	0.4	0.4	0.6	2.9	13.5	10.4	9.1	5.8	5.8	0.4	0.0	0.2	0.2	1.5	0.4	5.0	2.1	3.7	100
4-Aug	3.5	0.6	2.0	1.7	2.4	6.0	8.9	2.4	2.6	5.0	4.7	1.7	3.0	8.4	3.4	1.1	0.7	1.1	0.6	2.2	10.2	17.5	8.4	1.9	100
5-Aug	1.0	1.5	0.8	0.0	1.0	5.1	3.5	9.3	12.3	7.6	6.6	3.5	10.1	4.0	2.2	1.3	3.2	1.5	0.5	0.7	11.4	6.6	3.7	2.5	100
Total	1.8	1.9	2.1	2.3	2.2	3.0	3.1	3.7	5.1	6.6	5.4	5.4	5.6	5.5	4.5	4.3	4.6	4.7	5.5	5.5	5.8	4.6	4.1	2.6	100

**Appendix C7.**—Crescent River north bank sonar counts by sector, 24 June through 5 August, 2004.

Date	Counts by Sector												Daily	Cumulative
	1	2	3	4	5	6	7	8	9	10	11	12	Total	Total
24-Jun	33	16	28	41	139	136	408	318	117	134	117	46	1,533	1,533
25-Jun	31	54	48	86	79	53	95	88	95	95	196	122	1,042	2,575
26-Jun	76	381	76	83	163	36	13	5	0	2	2	0	837	3,412
27-Jun	280	522	535	12	1	1	0	0	0	0	0	0	1,351	4,763
28-Jun	596	745	360	21	12	5	0	0	0	0	0	0	1,739	6,502
29-Jun	92	1,009	1,562	135	33	7	0	0	0	0	0	1	2,839	9,341
30-Jun	123	353	115	43	21	3	0	0	0	0	0	0	658	9,999
1-Jul	121	527	197	56	35	6	5	15	9	0	0	0	971	10,970
2-Jul	211	343	679	334	183	44	29	7	0	1	0	0	1,831	12,801
3-Jul	134	167	941	680	185	38	72	43	8	1	0	0	2,269	15,070
4-Jul	175	170	610	592	138	74	98	57	5	8	2	0	1,929	16,999
5-Jul	60	178	191	408	194	113	137	70	12	9	1	2	1,375	18,374
6-Jul	48	226	480	432	178	62	49	38	4	3	2	4	1,526	19,900
7-Jul	262	151	261	311	278	53	58	24	7	6	0	2	1,413	21,313
8-Jul	405	264	367	382	154	93	75	49	6	4	1	0	1,800	23,113
9-Jul	145	182	362	370	182	101	63	37	9	5	0	4	1,460	24,573
10-Jul	123	184	316	425	169	88	49	9	4	2	0	0	1,369	25,942
11-Jul	305	824	623	173	215	51	20	5	1	0	1	0	2,218	28,160
12-Jul	725	1,747	710	72	51	41	14	0	0	0	0	0	3,360	31,520
13-Jul	896	2,467	1,016	122	77	38	29	2	0	0	0	0	4,647	36,167
14-Jul	543	2,258	1,792	343	334	240	93	38	13	7	0	0	5,661	41,828
15-Jul	578	832	994	193	277	197	34	8	8	2	0	0	3,123	44,951
16-Jul	176	317	734	170	164	29	20	11	1	0	0	0	1,622	46,573
17-Jul	128	381	620	241	66	25	8	6	2	0	0	0	1,477	48,050
18-Jul	476	316	273	69	20	11	8	3	0	0	0	0	1,176	49,226
19-Jul	409	339	367	80	15	9	2	3	1	0	0	0	1,225	50,451
20-Jul	274	255	552	212	42	23	10	4	1	0	0	0	1,373	51,824
21-Jul	133	217	558	214	43	14	10	4	0	0	0	0	1,193	53,017
22-Jul	187	301	281	202	21	5	2	2	2	0	0	0	1,003	54,020
23-Jul	545	490	504	117	22	13	2	0	0	0	0	0	1,693	55,713
24-Jul	27	132	339	171	61	11	11	2	1	0	0	0	755	56,468
25-Jul	7	18	185	234	96	20	4	5	1	0	0	0	570	57,038
26-Jul	217	263	127	33	18	2	4	0	0	0	0	0	664	57,702
27-Jul	168	70	6	8	0	0	0	0	0	0	0	0	252	57,954
28-Jul	118	218	191	12	3	0	0	0	0	0	0	0	542	58,496
29-Jul	224	2,024	704	53	4	0	1	0	0	0	0	0	3,010	61,506
30-Jul	583	1,093	263	120	23	9	7	20	3	1	0	1	2,123	63,629
31-Jul	110	744	265	120	105	45	10	3	3	0	0	0	1,405	65,034
1-Aug	64	138	339	452	299	184	22	1	3	0	0	0	1,502	66,536
2-Aug	86	143	459	162	219	78	23	2	0	5	1	0	1,178	67,714
3-Aug	58	263	263	223	65	39	22	13	1	0	0	3	950	68,664
4-Aug	266	339	48	122	9	1	4	44	0	0	0	0	833	69,497
5-Aug	56	220	0	103	29	15	29	110	0	0	0	0	562	70,059
<b>Total</b>	<b>10,274</b>	<b>21,881</b>	<b>19,341</b>	<b>8,432</b>	<b>4,422</b>	<b>2,013</b>	<b>1,540</b>	<b>1,046</b>	<b>317</b>	<b>285</b>	<b>323</b>	<b>185</b>	<b>70,059</b>	

**Appendix C8.**—Crescent River south bank sonar counts by sector, 24 June through 5 August, 2004.

Date	Counts by Sector												Daily	Cumulative
	1	2	3	4	5	6	7	8	9	10	11	12	Total	Total
24-Jun	130	472	227	6	0	0	0	0	0	0	0	0	835	835
25-Jun	49	192	125	8	0	0	0	0	0	0	0	0	374	1,209
26-Jun	5	46	18	1	0	0	0	0	0	0	0	14	84	1,293
27-Jun	224	263	45	10	0	0	0	0	0	1	1	0	544	1,837
28-Jun	457	416	76	6	0	0	0	0	0	0	0	0	955	2,792
29-Jun	572	484	122	6	0	0	0	0	0	0	0	0	1,184	3,976
30-Jun	308	213	32	5	1	0	0	0	0	0	0	6	565	4,541
1-Jul	141	230	59	11	3	0	0	0	0	0	0	0	444	4,985
2-Jul	355	620	148	31	2	0	0	0	0	0	0	16	1,172	6,157
3-Jul	303	553	196	67	22	0	0	0	0	0	0	0	1,141	7,298
4-Jul	132	355	143	68	21	1	0	0	0	0	0	0	720	8,018
5-Jul	234	669	352	79	34	3	0	0	0	0	0	0	1,371	9,389
6-Jul	185	501	226	68	28	5	0	0	0	0	0	0	1,013	10,402
7-Jul	118	193	96	42	17	1	0	0	0	0	0	0	467	10,869
8-Jul	164	299	181	32	27	3	0	0	0	0	0	0	706	11,575
9-Jul	112	239	113	30	23	0	0	0	0	10	0	0	527	12,102
10-Jul	69	226	135	41	11	0	0	0	0	0	0	0	482	12,584
11-Jul	211	484	479	98	15	1	0	1	0	0	0	0	1,289	13,873
12-Jul	374	771	413	37	2	10	0	0	0	0	0	0	1,607	15,480
13-Jul	709	1,426	442	32	2	0	0	0	0	0	0	3	2,614	18,094
14-Jul	640	948	446	39	6	0	0	0	0	0	0	1	2,080	20,174
15-Jul	241	610	652	142	25	19	1	0	1	0	0	10	1,701	21,875
16-Jul	116	409	446	81	23	1	0	0	0	0	0	0	1,076	22,951
17-Jul	120	361	371	96	17	1	0	0	0	0	0	0	966	23,917
18-Jul	445	585	345	36	10	3	0	0	0	0	0	0	1,424	25,341
19-Jul	438	851	489	67	8	0	0	0	0	0	0	0	1,853	27,194
20-Jul	162	475	356	56	11	1	0	0	0	0	0	0	1,061	28,255
21-Jul	115	279	434	48	9	0	3	3	0	0	0	0	891	29,146
22-Jul	230	274	230	35	8	0	0	0	0	0	0	0	777	29,923
23-Jul	229	688	421	56	15	14	0	0	0	0	0	0	1,423	31,346
24-Jul	56	145	291	52	5	7	4	4	4	4	4	2	578	31,924
25-Jul	56	238	115	33	4	0	1	1	0	0	0	0	448	32,372
26-Jul	170	68	35	14	23	3	1	1	0	0	0	0	315	32,687
27-Jul	47	26	6	0	0	0	0	0	0	0	0	1	80	32,767
28-Jul	200	39	12	0	0	0	0	0	0	0	0	0	251	33,018
29-Jul	1,186	458	69	6	0	0	0	0	0	0	0	0	1,719	34,737
30-Jul	289	256	76	2	0	0	0	0	0	0	0	0	623	35,360
31-Jul	311	260	48	2	2	0	0	0	0	0	0	0	623	35,983
1-Aug	448	303	79	5	0	0	0	0	0	0	0	0	835	36,818
2-Aug	300	333	68	6	2	0	0	0	0	0	0	0	709	37,527
3-Aug	248	287	54	4	0	0	0	0	0	0	0	1	594	38,121
4-Aug	193	263	62	3	0	0	0	0	0	0	0	16	537	38,658
5-Aug	292	135	43	4	2	0	2	0	2	2	0	0	482	39,140
Total	11,384	16,943	8,776	1,465	378	73	12	10	7	17	5	70	39,140	

**Appendix C9.**—Percentage of daily total Crescent River north bank sonar counts by sector, 24 June through 5 August, 2004.

Date	Counts by Sector												Daily Total
	1	2	3	4	5	6	7	8	9	10	11	12	
24-Jun	2.2	1.0	1.8	2.7	9.1	8.9	26.6	20.7	7.6	8.7	7.6	3.0	100
25-Jun	3.0	5.2	4.6	8.3	7.6	5.1	9.1	8.4	9.1	9.1	18.8	11.7	100
26-Jun	9.1	45.5	9.1	9.9	19.5	4.3	1.6	0.6	0.0	0.2	0.2	0.0	100
27-Jun	20.7	38.6	39.6	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	100
28-Jun	34.3	42.8	20.7	1.2	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	100
29-Jun	3.2	35.5	55.0	4.8	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	100
30-Jun	18.7	53.6	17.5	6.5	3.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	100
1-Jul	12.5	54.3	20.3	5.8	3.6	0.6	0.5	1.5	0.9	0.0	0.0	0.0	100
2-Jul	11.5	18.7	37.1	18.2	10.0	2.4	1.6	0.4	0.0	0.1	0.0	0.0	100
3-Jul	5.9	7.4	41.5	30.0	8.2	1.7	3.2	1.9	0.4	0.0	0.0	0.0	100
4-Jul	9.1	8.8	31.6	30.7	7.2	3.8	5.1	3.0	0.3	0.4	0.1	0.0	100
5-Jul	4.4	12.9	13.9	29.7	14.1	8.2	10.0	5.1	0.9	0.7	0.1	0.1	100
6-Jul	3.1	14.8	31.5	28.3	11.7	4.1	3.2	2.5	0.3	0.2	0.1	0.3	100
7-Jul	18.5	10.7	18.5	22.0	19.7	3.8	4.1	1.7	0.5	0.4	0.0	0.1	100
8-Jul	22.5	14.7	20.4	21.2	8.6	5.2	4.2	2.7	0.3	0.2	0.1	0.0	100
9-Jul	9.9	12.5	24.8	25.3	12.5	6.9	4.3	2.5	0.6	0.3	0.0	0.3	100
10-Jul	9.0	13.4	23.1	31.0	12.3	6.4	3.6	0.7	0.3	0.1	0.0	0.0	100
11-Jul	13.8	37.2	28.1	7.8	9.7	2.3	0.9	0.2	0.0	0.0	0.0	0.0	100
12-Jul	21.6	52.0	21.1	2.1	1.5	1.2	0.4	0.0	0.0	0.0	0.0	0.0	100
13-Jul	19.3	53.1	21.9	2.6	1.7	0.8	0.6	0.0	0.0	0.0	0.0	0.0	100
14-Jul	9.6	39.9	31.7	6.1	5.9	4.2	1.6	0.7	0.2	0.1	0.0	0.0	100
15-Jul	18.5	26.6	31.8	6.2	8.9	6.3	1.1	0.3	0.3	0.1	0.0	0.0	100
16-Jul	10.9	19.5	45.3	10.5	10.1	1.8	1.2	0.7	0.1	0.0	0.0	0.0	100
17-Jul	8.7	25.8	42.0	16.3	4.5	1.7	0.5	0.4	0.1	0.0	0.0	0.0	100
18-Jul	40.5	26.9	23.2	5.9	1.7	0.9	0.7	0.3	0.0	0.0	0.0	0.0	100
19-Jul	33.4	27.7	30.0	6.5	1.2	0.7	0.2	0.2	0.1	0.0	0.0	0.0	100
20-Jul	20.0	18.6	40.2	15.4	3.1	1.7	0.7	0.3	0.1	0.0	0.0	0.0	100
21-Jul	11.1	18.2	46.8	17.9	3.6	1.2	0.8	0.3	0.0	0.0	0.0	0.0	100
22-Jul	18.6	30.0	28.0	20.1	2.1	0.5	0.2	0.2	0.2	0.0	0.0	0.0	100
23-Jul	32.2	28.9	29.8	6.9	1.3	0.8	0.1	0.0	0.0	0.0	0.0	0.0	100
24-Jul	3.6	17.5	44.9	22.6	8.1	1.5	1.5	0.3	0.1	0.0	0.0	0.0	100
25-Jul	1.2	3.2	32.5	41.1	16.8	3.5	0.7	0.9	0.2	0.0	0.0	0.0	100
26-Jul	32.7	39.6	19.1	5.0	2.7	0.3	0.6	0.0	0.0	0.0	0.0	0.0	100
27-Jul	66.7	27.8	2.4	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
28-Jul	21.8	40.2	35.2	2.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
29-Jul	7.4	67.2	23.4	1.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
30-Jul	27.5	51.5	12.4	5.7	1.1	0.4	0.3	0.9	0.1	0.0	0.0	0.0	100
31-Jul	7.8	53.0	18.9	8.5	7.5	3.2	0.7	0.2	0.2	0.0	0.0	0.0	100
1-Aug	4.3	9.2	22.6	30.1	19.9	12.3	1.5	0.1	0.2	0.0	0.0	0.0	100
2-Aug	7.3	12.1	39.0	13.8	18.6	6.6	2.0	0.2	0.0	0.4	0.1	0.0	100
3-Aug	6.1	27.7	27.7	23.5	6.8	4.1	2.3	1.4	0.1	0.0	0.0	0.3	100
4-Aug	31.9	40.7	5.8	14.6	1.1	0.1	0.5	5.3	0.0	0.0	0.0	0.0	100
5-Aug	10.0	39.1	0.0	18.3	5.2	2.7	5.2	19.6	0.0	0.0	0.0	0.0	100
Percentage of Daily Total	14.7	31.2	27.6	12.0	6.3	2.9	2.2	1.5	0.5	0.4	0.5	0.3	100

**Appendix C10.**—Percentage of daily total Crescent River south bank sonar counts by sector, 24 June through 3 August, 2004.

Date	Counts by Sector												Daily Total
	1	2	3	4	5	6	7	8	9	10	11	12	
24-Jun	15.6	56.5	27.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
25-Jun	13.1	51.3	33.4	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
26-Jun	6.0	54.8	21.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	100
27-Jun	41.2	48.3	8.3	1.8	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	100
28-Jun	47.9	43.6	8.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
29-Jun	48.3	40.9	10.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
30-Jun	54.5	37.7	5.7	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.1	100
1-Jul	31.8	51.8	13.3	2.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
2-Jul	30.3	52.9	12.6	2.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4	100
3-Jul	26.6	48.5	17.2	5.9	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
4-Jul	18.3	49.3	19.9	9.4	2.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	100
5-Jul	17.1	48.8	25.7	5.8	2.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	100
6-Jul	18.3	49.5	22.3	6.7	2.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	100
7-Jul	25.3	41.3	20.6	9.0	3.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	100
8-Jul	23.2	42.4	25.6	4.5	3.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	100
9-Jul	21.3	45.4	21.4	5.7	4.4	0.0	0.0	0.0	0.0	1.9	0.0	0.0	100
10-Jul	14.3	46.9	28.0	8.5	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
11-Jul	16.4	37.5	37.2	7.6	1.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	100
12-Jul	23.3	48.0	25.7	2.3	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	100
13-Jul	27.1	54.6	16.9	1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	100
14-Jul	30.8	45.6	21.4	1.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
15-Jul	14.2	35.9	38.3	8.3	1.5	1.1	0.1	0.0	0.1	0.0	0.0	0.6	100
16-Jul	10.8	38.0	41.4	7.5	2.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	100
17-Jul	12.4	37.4	38.4	9.9	1.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	100
18-Jul	31.2	41.1	24.2	2.5	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	100
19-Jul	23.6	45.9	26.4	3.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
20-Jul	15.3	44.8	33.6	5.3	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	100
21-Jul	12.9	31.3	48.7	5.4	1.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	100
22-Jul	29.6	35.3	29.6	4.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
23-Jul	16.1	48.3	29.6	3.9	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	100
24-Jul	9.7	25.1	50.3	9.0	0.9	1.2	0.7	0.7	0.7	0.7	0.7	0.3	100
25-Jul	12.5	53.1	25.7	7.4	0.9	0.0	0.2	0.2	0.0	0.0	0.0	0.0	100
26-Jul	54.0	21.6	11.1	4.4	7.3	1.0	0.3	0.3	0.0	0.0	0.0	0.0	100
27-Jul	58.8	32.5	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	100
28-Jul	79.7	15.5	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
29-Jul	69.0	26.6	4.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
30-Jul	15.3	44.8	33.6	5.3	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	100
31-Jul	12.9	31.3	48.7	5.4	1.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	100
1-Aug	29.6	35.3	29.6	4.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
2-Aug	16.1	48.3	29.6	3.9	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	100
3-Aug	9.7	25.1	50.3	9.0	0.9	1.2	0.7	0.7	0.7	0.7	0.7	0.3	100
4-Aug	12.5	53.1	25.7	7.4	0.9	0.0	0.2	0.2	0.0	0.0	0.0	0.0	100
5-Aug	54.0	21.6	11.1	4.4	7.3	1.0	0.3	0.3	0.0	0.0	0.0	0.0	100
Percentage of Daily Total	26.8	41.6	24.8	4.5	1.4	0.2	0.1	0.1	0.0	0.1	0.0	0.5	100

**Appendix C11.**—Minimum and maximum daily counting ranges for both banks of the Crescent River and range from transducer where a minimum of 80% of the migration occurred in 2004.

Date	North Bank					South Bank				
	Counting Range (Sectors 1-12)		Average Sector Width	Range where > 80% of Migration Occurred (m)	Sectors where > 80% of Migration Occurred	Counting Range (Sectors 1-12)		Average Sector Width	Range where > 80% of Migration Occurred (m)	Sectors where > 80% of Migration Occurred
	(ft)	(m)	(m)			(ft)	(m)	(m)		
24-Jun	13	4.0	0.3	3.0	1 - 9	30	9.1	0.8	2.3	1 - 3
25-Jun	13	4.0	0.3	3.6	1 - 11	30	9.1	0.8	2.3	1 - 3
25-Jun	30	9.1	0.8	8.4	1 - 11					
26-Jun	30	9.1	0.8	3.8	1 - 5	30	9.1	0.8	2.3	1 - 3
						28	8.5	0.7	2.1	1 - 3
27-Jun	40	12.2	1.0	3.0	1 - 3	28	8.5	0.7	1.4	1 - 2
27-Jun						25	7.6	0.6	1.3	1 - 2
28-Jun	40	12.2	1.0	3.1	1 - 3	25	7.6	0.6	1.3	1 - 2
29-Jun	40	12.2	1.0	3.0	1 - 3	25	7.6	0.6	1.3	1 - 2
30-Jun	40	12.2	1.0	3.0	1 - 3	28	8.5	0.7	1.4	1 - 2
1-Jul	40	12.2	1.0	3.0	1 - 3	28	8.5	0.7	1.4	1 - 2
1-Jul	26	7.9	0.7	2.0	1 - 3					
2-Jul	40	12.2	1.0	4.1	1 - 4	28	8.5	0.7	1.4	1 - 2
3-Jul	40	12.2	1.0	4.1	1 - 4	28	8.5	0.7	2.1	1 - 3
4-Jul	40	12.2	1.0	4.1	1 - 4	28	8.5	0.7	2.1	1 - 3
5-Jul	40	12.2	1.0	6.1	1 - 6	28	8.5	0.7	2.1	1 - 3
6-Jul	40	12.2	1.0	5.1	1 - 5	28	8.5	0.7	2.1	1 - 3
7-Jul	40	12.2	1.0	5.1	1 - 5	28	8.5	0.7	2.1	1 - 3
8-Jul	40	12.2	1.0	5.1	1 - 5	28	8.5	0.7	2.1	1 - 3
9-Jul	40	12.2	1.0	5.1	1 - 5	28	8.5	0.7	2.1	1 - 3
10-Jul	40	12.2	1.0	5.1	1 - 5	28	8.5	0.7	2.1	1 - 3
11-Jul	40	12.2	1.0	4.1	1 - 4	26	7.9	0.7	2.0	1 - 3
12-Jul	40	12.2	1.0	3.0	1 - 3	26	7.9	0.7	2.0	1 - 3
13-Jul	40	12.2	1.0	3.0	1 - 3	26	7.9	0.7	1.3	1 - 2
14-Jul	40	12.2	1.0	3.0	1 - 3	26	7.9	0.7	2.0	1 - 3
15-Jul	40	12.2	1.0	4.1	1 - 4	26	7.9	0.7	2.0	1 - 3
16-Jul	38	11.6	1.0	3.9	1 - 4	26	7.9	0.7	2.0	1 - 3
17-Jul	38	11.6	1.0	3.9	1 - 4	26	7.9	0.7	2.0	1 - 3
17-Jul	38	11.6	1.0	3.9	1 - 4					
18-Jul	38	11.6	1.0	2.9	1 - 3	26	7.9	0.7	2.0	1 - 3
18-Jul	38	11.6	1.0	2.9	1 - 3					
19-Jul	38	11.6	1.0	2.9	1 - 3	25	7.6	0.6	1.9	1 - 3
20-Jul	38	11.6	1.0	3.9	1 - 4	28	8.5	0.7	2.1	1 - 3
21-Jul	36	11.0	0.9	3.7	1 - 4	28	8.5	0.7	2.1	1 - 3
22-Jul	36	11.0	0.9	3.7	1 - 4	28	8.5	0.7	2.1	1 - 3
23-Jul	37	11.3	0.9	2.8	1 - 3	28	8.5	0.7	2.1	1 - 3
24-Jul	38	11.6	1.0	3.9	1 - 4	25	7.6	0.6	1.9	1 - 3
25-Jul	38	11.6	1.0	4.8	1 - 5	25	7.6	0.6	1.9	1 - 3
25-Jul						18	5.5	0.5	1.4	1 - 3
26-Jul	38	11.6	1.0	2.9	1 - 3	18	5.5	0.5	1.4	1 - 3
26-Jul						30	9.1	0.8	2.3	1 - 3
27-Jul	40	12.2	1.0	2.0	1 - 2	30	9.1	0.8	1.5	1 - 2
28-Jul	40	12.2	1.0	3.0	1 - 3	30	9.1	0.8	1.5	1 - 2
29-Jul	40	12.2	1.0	3.0	1 - 3	30	9.1	0.8	1.5	1 - 2
30-Jul	40	12.2	1.0	3.0	1 - 3	30	9.1	0.8	2.3	1 - 3
31-Jul	40	12.2	1.0	4.1	1 - 4	28	8.5	0.7	2.1	1 - 3
1-Aug	40	12.2	1.0	5.1	1 - 5	28	8.5	0.7	2.1	1 - 3
2-Aug	40	12.2	1.0	5.1	1 - 5	28	8.5	0.7	2.1	1 - 3
3-Aug	40	12.2	1.0	4.1	1 - 4	28	8.5	0.7	2.1	1 - 3
4-Aug	40	12.2	1.0	4.1	1 - 4	26	7.9	0.7	2.0	1 - 3
5-Aug	40	12.2	1.0	7.1	1 - 7	26	7.9	0.7	2.0	1 - 3
Average	11.4 m					Average 8.3 m				



## **APPENDIX D. YENTNA RIVER**

**Appendix D1.**—Estimated salmon escapement adjacent to the north bank of the Yentna River, 7 July through 12 August, 2004.

Date	Sockeye		Pink		Chum		Coho		Chinook	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7-Jul	101	101	0	0	0	0	0	0	51	51
8-Jul	109	210	22	22	0	0	65	65	22	73
9-Jul	72	282	0	22	0	0	108	173	72	144
10-Jul	72	354	0	22	0	0	48	221	48	192
11-Jul	43	397	0	22	22	22	43	264	22	214
12-Jul	53	450	18	40	18	39	142	406	35	249
13-Jul	18	468	55	95	55	94	200	606	0	249
14-Jul	50	518	184	279	100	194	567	1,174	17	266
15-Jul	292	810	550	829	138	332	860	2,034	17	283
16-Jul	816	1,626	2,204	3,033	286	618	857	2,891	20	304
17-Jul	408	2,034	1,653	4,686	143	760	1,204	4,095	61	365
18-Jul	91	2,125	674	5,361	34	794	194	4,289	23	388
19-Jul	51	2,176	796	6,157	26	820	193	4,482	0	388
20-Jul	194	2,370	941	7,098	28	848	277	4,758	0	388
21-Jul	148	2,518	652	7,750	0	848	119	4,877	15	403
22-Jul	103	2,621	1,519	9,270	140	988	435	5,312	0	403
23-Jul	91	2,712	2,314	11,584	54	1,042	290	5,602	0	403
24-Jul	144	2,856	2,179	13,763	12	1,054	359	5,962	0	403
25-Jul	86	2,942	1,830	15,593	52	1,105	498	6,460	0	403
26-Jul	114	3,056	2,739	18,332	96	1,201	814	7,274	0	403
27-Jul	37	3,093	1,515	19,847	46	1,247	353	7,627	9	412
28-Jul	50	3,143	1,111	20,958	27	1,274	150	7,777	0	412
29-Jul	237	3,380	3,418	24,376	92	1,366	470	8,246	0	412
30-Jul	104	3,484	4,794	29,170	127	1,493	880	9,126	0	412
31-Jul	68	3,552	2,584	31,754	135	1,629	858	9,984	0	412
1-Aug	46	3,598	1,738	33,493	231	1,859	723	10,707	0	412
2-Aug	60	3,658	874	34,367	20	1,879	407	11,114	0	412
3-Aug	150	3,808	581	34,948	122	2,001	365	11,480	19	431
4-Aug	148	3,956	1,078	36,025	180	2,181	412	11,892	0	431
5-Aug	92	4,048	916	36,941	162	2,342	262	12,153	0	431
6-Aug	74	4,122	626	37,568	66	2,408	295	12,448	0	431
7-Aug	57	4,179	440	38,008	99	2,507	369	12,817	0	431
8-Aug	126	4,305	377	38,385	106	2,613	609	13,426	0	431
9-Aug	44	4,349	567	38,952	222	2,836	422	13,848	0	431
10-Aug	69	4,418	269	39,221	226	3,061	408	14,256	0	431
11-Aug	69	4,487	214	39,435	191	3,253	237	14,494	0	431
12-Aug	53	4,540	115	39,550	151	3,403	151	14,644	0	431

**Appendix D2.**—Estimated salmon escapement adjacent to the south bank of the Yentna River, 7 July through 12 August, 2004.

Date	Sockeye		Pink		Chum		Coho		Chinook	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7-Jul	21	21	0	0	0	0	17	17	8	8
8-Jul	77	98	0	0	0	0	6	23	6	14
9-Jul	37	135	0	0	5	5	37	59	0	14
10-Jul	41	176	0	0	0	5	42	101	0	14
11-Jul	28	204	4	4	4	9	14	115	8	22
12-Jul	40	244	22	26	22	30	30	145	3	25
13-Jul	47	291	10	36	24	54	101	246	3	28
14-Jul	187	478	143	179	87	141	386	632	19	47
15-Jul	5,295	5,773	2,484	2,663	523	664	3,759	4,391	33	80
16-Jul	11,363	17,136	8,641	11,304	476	1,140	5,035	9,426	0	80
17-Jul	7,710	24,846	9,620	20,924	637	1,777	3,961	13,387	0	80
18-Jul	5,599	30,445	8,295	29,219	726	2,502	3,836	17,223	52	132
19-Jul	4,371	34,816	7,604	36,823	319	2,821	728	17,951	1,047	1,179
20-Jul	2,355	37,171	4,314	41,137	233	3,054	1,049	19,000	0	1,179
21-Jul	1,178	38,349	4,206	45,343	185	3,239	1,447	20,447	0	1,179
22-Jul	1,309	39,658	5,813	51,156	204	3,443	2,414	22,861	17	1,196
23-Jul	1,768	41,426	14,553	65,709	221	3,664	5,048	27,908	37	1,233
24-Jul	2,574	44,000	14,291	80,001	363	4,027	2,673	30,582	33	1,266
25-Jul	1,634	45,634	9,157	89,158	130	4,157	4,177	34,758	26	1,292
26-Jul	1,979	47,613	14,168	103,326	471	4,628	6,911	41,669	0	1,292
27-Jul	743	48,356	10,218	113,544	268	4,896	5,326	46,995	0	1,292
28-Jul	462	48,818	4,780	118,324	83	4,979	1,214	48,209	0	1,292
29-Jul	496	49,314	3,793	122,118	110	5,088	796	49,004	0	1,292
30-Jul	1,117	50,431	10,591	132,709	501	5,589	1,772	50,776	0	1,292
31-Jul	1,655	52,086	13,295	146,004	464	6,054	3,600	54,375	29	1,321
1-Aug	751	52,837	7,654	153,658	584	6,638	3,423	57,799	0	1,321
2-Aug	1,189	54,026	4,602	158,260	286	6,924	2,972	60,771	0	1,321
3-Aug	1,043	55,069	2,869	161,129	353	7,277	1,488	62,259	0	1,321
4-Aug	1,647	56,716	3,375	164,504	388	7,665	1,835	64,094	0	1,321
5-Aug	2,088	58,804	3,960	168,464	407	8,072	1,744	65,839	0	1,321
6-Aug	1,969	60,773	3,199	171,663	1,107	9,179	2,461	68,300	0	1,321
7-Aug	1,638	62,411	3,055	174,718	768	9,947	2,185	70,484	0	1,321
8-Aug	1,214	63,625	2,375	177,094	809	10,757	2,194	72,678	0	1,321
9-Aug	1,007	64,632	1,549	178,643	758	11,515	2,014	74,692	0	1,321
10-Aug	852	65,484	859	179,502	686	12,201	1,274	75,966	0	1,321
11-Aug	804	66,288	687	180,189	497	12,698	878	76,844	6	1,327
12-Aug	453	66,741	607	180,796	314	13,012	855	77,699	0	1,327

**Appendix D3.—Yentna River north bank sonar counts by hour, 7 July through 12 August 2004.**

Date	Counts by Hour																								Daily Total	Cum Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
7-Jul	1	9	4	4	3	0	5	3	1	0	2	2	29	7	2	2	12	9	22	8	1	2	17	7	152	152
8-Jul	6	3	4	2	0	9	9	6	10	8	10	33	15	9	8	7	22	4	4	2	10	12	20	5	218	370
9-Jul	22	21	7	4	13	8	7	19	3	11	3	7	6	9	7	7	7	35	5	15	4	8	14	9	251	621
10-Jul	7	2	9	6	7	13	4	6	1	2	2	6	1	14	7	5	5	9	4	5	6	11	20	15	167	788
11-Jul	8	10	5	5	10	6	1	1	3	2	4	10	3	0	12	3	0	4	1	3	10	10	4	15	130	918
12-Jul	8	8	18	12	16	6	0	7	1	2	0	17	2	16	9	4	3	16	11	10	49	9	13	29	266	1,184
13-Jul	19	24	5	9	4	1	2	4	5	19	19	31	12	12	11	24	9	20	29	33	8	2	19	7	328	1,512
14-Jul	26	12	19	8	34	4	0	18	14	20	2	8	24	51	62	30	34	47	48	64	29	19	192	153	918	2,430
15-Jul	92	76	51	37	40	33	20	19	24	46	59	84	68	50	50	78	105	79	124	115	74	98	215	220	1,857	4,287
16-Jul	84	150	147	91	175	73	83	65	62	84	225	197	267	241	212	121	199	250	151	157	142	437	336	235	4,184	8,471
17-Jul	281	304	237	278	150	113	98	73	96	94	76	109	99	138	192	157	194	154	108	108	113	148	94	55	3,469	11,940
18-Jul	66	79	58	36	11	28	7	16	11	18	24	42	40	20	26	27	49	96	62	90	12	39	106	54	1,017	12,957
19-Jul	30	49	45	44	36	37	28	20	16	29	52	32	80	59	38	73	41	43	50	14	48	35	119	48	1,066	14,023
20-Jul	48	121	86	169	65	77	53	26	14	12	9	61	63	62	38	48	53	23	70	151	39	42	58	51	1,439	15,462
21-Jul	28	19	19	20	15	44	15	3	10	14	4	31	27	51	35	58	39	44	73	91	53	54	73	114	934	16,396
22-Jul	119	91	84	93	64	38	23	19	28	15	20	68	152	96	54	66	109	253	184	162	103	104	137	116	2,198	18,594
23-Jul	80	78	92	100	104	91	120	42	124	64	81	135	84	143	64	171	97	164	154	131	142	165	209	114	2,749	21,343
24-Jul	212	153	151	141	93	60	66	52	50	70	126	69	207	79	66	98	98	127	108	58	97	113	277	123	2,694	24,037
25-Jul	71	96	58	58	46	75	34	24	41	22	31	28	105	51	141	76	141	259	199	243	128	153	233	153	2,466	26,503
26-Jul	129	128	135	187	119	97	83	57	25	75	47	201	208	94	192	182	191	402	331	287	152	149	109	183	3,763	30,266
27-Jul	190	108	132	116	90	115	66	28	68	133	60	144	149	37	19	68	150	31	43	33	47	49	46	38	1,960	32,226
28-Jul	45	27	34	44	14	25	29	33	58	3	6	5	45	57	49	49	65	135	173	79	64	93	91	115	1,338	33,564
29-Jul	60	97	88	106	103	81	61	39	36	52	91	81	149	191	144	209	317	407	345	206	233	425	368	328	4,217	37,781
30-Jul	273	175	184	189	201	205	227	188	295	105	111	129	259	187	131	257	457	631	444	257	152	290	291	267	5,905	43,686
31-Jul	193	169	221	138	124	142	121	120	53	111	77	99	208	89	70	153	204	157	244	132	167	318	213	122	3,645	47,331
1-Aug	121	153	132	110	60	127	64	84	127	63	67	193	187	112	46	95	181	147	149	80	90	98	162	90	2,738	50,069
2-Aug	68	80	45	56	26	21	41	30	51	25	25	99	48	43	30	44	126	106	127	54	65	94	28	29	1,361	51,430
3-Aug	20	11	11	19	21	11	17	25	38	29	30	55	43	56	84	53	70	84	145	145	65	62	61	81	1,236	52,666
4-Aug	72	42	67	49	35	84	59	91	65	67	34	66	49	51	72	139	153	88	103	31	109	100	118	73	1,817	54,483
5-Aug	75	41	33	25	9	29	20	42	46	18	29	31	37	35	43	43	110	132	190	84	55	91	119	95	1,432	55,915
6-Aug	58	50	44	45	31	36	15	26	30	22	20	53	36	18	64	38	86	45	47	76	57	18	69	77	1,061	56,976
7-Aug	31	48	32	36	70	22	52	44	25	12	17	39	15	38	45	78	72	57	87	18	29	36	35	27	965	57,941
8-Aug	47	36	23	7	16	16	11	14	15	19	73	70	31	56	65	77	62	93	70	121	112	86	39	59	1,218	59,159
9-Aug	64	53	28	35	27	52	65	63	31	38	45	61	58	41	53	75	104	62	45	54	75	45	42	40	1,256	60,415
10-Aug	75	55	19	27	22	50	21	28	25	34	41	42	25	34	19	52	27	47	63	46	72	44	78	26	972	61,387
11-Aug	41	14	16	36	22	15	39	25	9	31	9	30	7	40	19	42	73	53	41	34	30	29	30	27	712	62,099
12-Aug	19	22	9	33	14	3	14	9	4	9	20	37	25	13	20	19	39	19	31	24	24	38	18	7	470	62,569
Total	2,789	2,614	2,352	2,375	1,890	1,847	1,580	1,369	1,515	1,378	1,551	2,405	2,863	2,300	2,199	2,728	3,704	4,332	4,085	3,221	2,666	3,526	4,073	3,207	62,569	

**Appendix D4.—Yentna River south bank sonar counts by hour, 7 July through 12 August 2004.**

Date	Counts by Hour																								Daily Total	Cum Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
7-Jul	0	2	2	2	0	1	2	1	1	0	0	0	0	0	3	2	1	2	5	3	6	8	5	0	46	46
8-Jul	2	7	6	4	2	9	9	9	11	1	1	4	1	2	1	0	6	2	1	1	1	1	0	8	89	135
9-Jul	3	10	4	1	5	5	7	1	5	1	1	6	0	5	2	1	4	1	5	0	2	1	5	3	78	213
10-Jul	11	1	3	7	6	13	1	6	3	0	6	2	2	5	1	2	1	3	4	0	1	0	3	2	83	296
11-Jul	5	2	0	2	4	2	7	1	3	2	0	1	1	2	0	0	7	2	1	1	4	1	5	5	58	354
12-Jul	5	3	8	2	2	5	10	1	0	1	0	5	7	6	4	0	0	6	6	20	5	7	6	7	116	470
13-Jul	6	3	0	2	7	11	4	6	11	0	7	11	4	7	2	8	16	15	17	19	14	3	6	7	186	656
14-Jul	15	28	17	13	13	25	16	5	13	15	27	61	36	24	39	35	26	50	35	69	39	40	65	115	821	1,477
15-Jul	196	279	232	234	297	304	186	173	301	483	281	473	475	531	657	601	653	936	971	699	663	616	896	956	12,093	13,570
16-Jul	1,010	1,094	1,041	960	1,096	1,030	817	806	994	986	874	1,310	1,223	974	788	1,351	1,133	1,252	1,284	634	1,192	1,223	1,284	1,159	25,515	39,085
17-Jul	1,009	1,077	1,065	994	970	893	675	566	818	867	936	1,278	1,182	1,167	983	429	845	998	891	867	519	873	997	1,028	21,927	61,012
18-Jul	957	951	943	990	891	795	531	477	800	873	740	682	908	1,002	896	695	724	879	779	816	433	439	654	653	18,508	79,520
19-Jul	699	685	621	569	607	612	397	404	621	654	200	1,044	872	724	458	449	712	745	692	525	304	359	604	512	14,069	93,589
20-Jul	366	258	280	385	538	477	223	268	253	331	379	445	470	542	348	146	262	387	305	311	223	157	205	392	7,951	101,540
21-Jul	278	399	292	355	291	293	230	143	160	328	206	387	377	370	240	211	298	385	310	200	208	353	380	322	7,016	108,556
22-Jul	238	338	386	372	372	392	201	172	367	375	329	510	429	594	366	305	349	459	429	327	369	700	704	673	9,756	118,312
23-Jul	608	710	839	805	729	748	548	586	751	735	706	1,012	1,052	1,068	891	757	939	1,000	1,200	1,326	1,002	1,173	1,207	1,235	21,627	139,939
24-Jul	1,228	1,231	1,103	913	906	855	646	627	769	787	692	1,022	965	1,119	568	788	716	729	858	887	480	493	835	718	19,935	159,874
25-Jul	716	731	710	588	646	667	402	304	535	540	315	566	747	553	449	435	469	687	714	646	803	910	1,071	920	15,124	174,998
26-Jul	779	1,090	1,102	1,251	1,134	1,135	946	860	943	742	926	1,427	1,138	908	1,004	725	915	1,189	1,064	929	762	793	825	942	23,529	198,527
27-Jul	1,035	1,118	1,088	980	1,000	926	795	621	791	780	564	807	653	626	532	473	742	698	457	353	369	521	320	306	16,555	215,082
28-Jul	239	371	501	407	271	241	194	273	186	180	232	252	301	369	423	265	289	362	317	203	166	185	171	141	6,539	221,621
29-Jul	104	98	99	100	111	69	98	55	79	62	136	135	226	227	209	190	373	421	385	452	334	454	374	403	5,194	226,815
30-Jul	291	307	326	308	317	405	449	383	405	488	437	529	615	649	875	569	587	846	905	860	678	958	930	863	13,980	240,795
31-Jul	867	831	729	742	663	708	729	617	453	691	801	1,105	952	842	771	812	977	843	962	849	701	868	800	730	19,043	259,838
1-Aug	607	654	554	506	580	488	498	454	473	486	442	669	559	640	475	487	400	644	527	480	385	389	460	556	12,413	272,251
2-Aug	626	625	506	491	437	398	378	366	293	296	277	358	425	263	399	311	344	378	378	378	264	314	313	231	9,049	281,300
3-Aug	282	324	236	215	276	226	162	177	195	213	168	220	251	289	236	234	286	324	310	298	157	200	250	225	5,754	287,054
4-Aug	208	202	190	150	131	173	163	182	179	136	246	373	349	276	222	370	539	544	532	397	382	412	382	508	7,246	294,300
5-Aug	416	409	425	399	357	413	322	375	218	256	360	400	407	435	422	292	246	202	268	401	256	271	262	388	8,200	302,500
6-Aug	361	316	261	273	333	328	336	224	216	401	339	521	522	353	480	377	314	410	366	509	385	318	346	447	8,736	311,236
7-Aug	360	400	412	390	335	365	343	342	260	293	300	478	427	129	79	294	160	273	380	208	329	373	395	321	7,646	318,882
8-Aug	327	210	263	271	220	228	251	235	168	118	155	326	271	233	292	436	404	417	408	304	224	262	283	287	6,593	325,475
9-Aug	259	280	281	230	173	193	222	235	177	182	193	296	285	219	136	194	319	289	339	216	145	88	160	217	5,328	330,803
10-Aug	197	192	169	82	88	76	145	151	126	91	127	154	121	126	164	216	197	223	256	171	145	174	120	160	3,671	334,474
11-Aug	131	135	76	87	107	73	106	95	87	71	95	143	113	110	101	161	196	195	143	188	121	115	108	115	2,872	337,346
12-Aug	92	121	80	123	108	72	59	75	53	79	82	78	107	86	95	95	152	133	71	126	126	64	80	72	2,229	339,575
Total	14,533	15,492	14,850	14,203	14,023	13,654	11,108	10,276	11,718	12,544	11,580	17,090	16,473	15,475	13,611	12,716	14,601	16,929	16,575	14,673	12,197	14,116	15,511	15,627	339,575	

**Appendix D5.**—Percentage of daily total Yentna River north bank sonar counts by hour, 7 July through 12 August, 2004.

Date	Counts by Hour																								Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total
7-Jul	0.7	5.9	2.6	2.6	2.0	0.0	3.3	2.0	0.7	0.0	1.3	1.3	19.1	4.6	1.3	1.3	7.9	5.9	14.5	5.3	0.7	1.3	11.2	4.6	100
8-Jul	2.8	1.4	1.8	0.9	0.0	4.1	4.1	2.8	4.6	3.7	4.6	15.1	6.9	4.1	3.7	3.2	10.1	1.8	1.8	0.9	4.6	5.5	9.2	2.3	100
9-Jul	8.8	8.4	2.8	1.6	5.2	3.2	2.8	7.6	1.2	4.4	1.2	2.8	2.4	3.6	2.8	2.8	2.8	13.9	2.0	6.0	1.6	3.2	5.6	3.6	100
10-Jul	4.2	1.2	5.4	3.6	4.2	7.7	2.4	3.6	0.6	1.2	1.2	3.6	0.6	8.3	4.2	3.6	3.0	5.4	2.4	3.0	3.6	6.5	11.9	8.9	100
11-Jul	6.2	7.7	3.8	3.8	7.7	4.6	0.8	0.8	2.3	1.5	3.1	7.7	2.3	0.0	9.2	2.3	0.0	3.1	0.8	2.3	7.7	7.7	3.1	11.5	100
11-Jul	3.0	3.0	6.8	4.5	6.0	2.3	0.0	2.6	0.4	0.8	0.0	6.4	0.8	6.0	3.4	1.5	1.1	6.0	4.1	3.8	18.4	3.4	4.9	10.9	100
12-Jul	5.8	7.3	1.5	2.7	1.2	0.3	0.6	1.2	1.5	5.8	5.8	9.5	3.7	3.7	3.4	7.3	2.7	6.1	8.8	10.1	2.4	0.6	5.8	2.1	100
13-Jul	2.8	1.3	2.1	0.9	3.7	0.4	0.0	2.0	1.5	2.2	0.2	0.9	2.6	5.6	6.8	3.3	3.7	5.1	5.2	7.0	3.2	2.1	20.9	16.7	100
14-Jul	5.0	4.1	2.7	2.0	2.2	1.8	1.1	1.0	1.3	2.5	3.2	4.5	3.7	2.7	2.7	4.2	5.7	4.3	6.7	6.2	4.0	5.3	11.6	11.8	100
15-Jul	2.0	3.6	3.5	2.2	4.2	1.7	2.0	1.6	1.5	2.0	5.4	4.7	6.4	5.8	5.1	2.9	4.8	6.0	3.6	3.8	3.4	10.4	8.0	5.6	100
17-Jul	8.1	8.7	6.8	8.0	4.3	3.2	2.8	2.1	2.8	2.7	2.2	3.1	2.8	4.3	5.5	4.5	5.6	4.4	3.1	3.1	3.2	4.3	2.7	1.6	100
18-Jul	6.5	7.8	5.7	3.5	1.1	2.8	0.7	1.6	1.1	1.8	2.4	4.1	3.9	2.0	2.6	2.7	4.8	9.4	6.1	8.8	1.2	3.8	10.4	5.3	100
19-Jul	2.8	4.6	4.2	4.1	3.4	3.5	2.6	1.9	1.5	2.7	4.9	3.0	7.5	5.5	3.6	6.8	3.8	4.0	4.7	1.3	4.5	3.3	11.2	4.5	100
20-Jul	3.3	8.4	6.0	11.7	4.5	5.4	3.7	1.8	1.0	0.8	0.6	4.2	4.4	4.3	2.6	3.3	3.7	1.6	4.9	10.5	2.7	2.9	4.0	3.5	100
21-Jul	3.0	2.0	2.0	2.1	1.6	4.7	1.6	0.3	1.1	1.5	0.4	3.3	2.9	5.5	3.7	6.2	4.2	4.7	7.8	9.7	5.7	5.8	7.8	12.2	100
22-Jul	5.4	4.1	3.8	4.2	2.9	1.7	1.0	0.9	1.3	0.7	0.9	3.1	6.9	4.4	2.5	3.0	5.0	11.5	8.4	7.4	4.7	4.7	6.2	5.3	100
23-Jul	2.9	2.8	3.3	3.6	3.8	3.3	4.4	1.5	4.5	2.3	2.9	4.9	3.1	5.2	2.3	6.2	3.5	6.0	5.6	4.8	5.2	6.0	7.6	4.1	100
24-Jul	7.9	5.7	5.6	5.2	3.5	2.2	2.4	1.9	1.9	2.6	4.7	2.6	7.7	2.9	2.4	3.6	3.6	4.7	4.0	2.2	3.6	4.2	10.3	4.6	100
25-Jul	2.9	3.9	2.4	2.4	1.9	3.0	1.4	1.0	1.7	0.9	1.3	1.1	4.3	2.1	5.7	3.1	5.7	10.5	8.1	9.9	5.2	6.2	9.4	6.2	100
26-Jul	3.4	3.4	3.6	4.9	3.1	2.6	2.2	1.5	0.7	2.0	1.2	5.3	5.5	2.5	5.1	4.8	5.0	11.4	8.7	7.6	4.0	3.9	2.9	4.8	100
27-Jul	9.7	5.5	6.7	5.9	4.6	5.9	3.4	1.4	3.5	6.8	3.1	7.3	7.6	1.9	1.0	3.5	7.7	1.6	2.2	1.7	2.4	2.5	2.3	1.9	100
28-Jul	3.4	2.0	2.5	3.3	1.0	1.9	2.2	2.5	4.3	0.2	0.4	0.4	3.4	4.3	3.7	3.7	4.9	10.1	12.9	5.9	4.8	7.0	6.8	8.6	100
29-Jul	1.4	2.3	2.1	2.5	2.4	1.9	1.4	0.9	0.9	1.2	2.2	1.9	3.5	4.5	3.4	5.0	7.5	9.7	8.2	4.9	5.5	10.1	8.7	7.8	100
30-Jul	4.6	3.0	3.1	3.2	3.4	3.5	3.8	3.2	5.0	1.8	1.9	2.2	4.4	3.2	2.2	4.4	7.7	10.7	7.5	4.4	2.6	4.9	4.9	4.5	100
31-Jul	5.3	4.6	6.1	3.8	3.4	3.9	3.3	3.3	1.5	3.0	2.1	2.7	5.7	2.4	1.9	4.2	5.6	4.3	6.7	3.6	4.6	8.7	5.8	3.3	100
1-Aug	4.4	5.6	4.8	4.0	2.2	4.6	2.3	3.1	4.6	2.3	2.4	7.0	6.8	4.1	1.7	3.5	6.6	5.4	5.4	2.9	3.3	3.6	5.9	3.3	100
2-Aug	5.0	5.9	3.3	4.1	1.9	1.5	3.0	2.2	3.7	1.8	1.8	7.3	3.5	3.2	2.2	3.2	9.3	7.8	9.3	4.0	4.8	6.9	2.1	2.1	100
3-Aug	1.6	0.9	0.9	1.5	1.7	0.9	1.4	2.0	3.1	2.3	2.4	4.4	3.5	4.5	6.8	4.3	5.7	6.8	11.7	11.7	5.3	5.0	4.9	6.6	100
4-Aug	4.0	2.3	3.7	2.7	1.9	4.6	3.2	5.0	3.6	3.7	1.9	3.6	2.7	2.8	4.0	7.6	8.4	4.8	5.7	1.7	6.0	5.5	6.5	4.0	100
5-Aug	5.2	2.9	2.3	1.7	0.6	2.0	1.4	2.9	3.2	1.3	2.0	2.2	2.6	2.4	3.0	3.0	7.7	9.2	13.3	5.9	3.8	6.4	8.3	6.6	100
6-Aug	5.5	4.7	4.1	4.2	2.9	3.4	1.4	2.5	2.8	2.1	1.9	5.0	3.4	1.7	6.0	3.6	8.1	4.2	4.4	7.2	5.4	1.7	6.5	7.3	100
7-Aug	3.2	5.0	3.3	3.7	7.3	2.3	5.4	4.6	2.6	1.2	1.8	4.0	1.6	3.9	4.7	8.1	7.5	5.9	9.0	1.9	3.0	3.7	3.6	2.8	100
8-Aug	3.9	3.0	1.9	0.6	1.3	1.3	0.9	1.1	1.2	1.6	6.0	5.7	2.5	4.6	5.3	6.3	5.1	7.6	5.7	9.9	9.2	7.1	3.2	4.8	100
9-Aug	5.1	4.2	2.2	2.8	2.1	4.1	5.2	5.0	2.5	3.0	3.6	4.9	4.6	3.3	4.2	6.0	8.3	4.9	3.6	4.3	6.0	3.6	3.3	3.2	100
10-Aug	7.7	5.7	2.0	2.8	2.3	5.1	2.2	2.9	2.6	3.5	4.2	4.3	2.6	3.5	2.0	5.3	2.8	4.8	6.5	4.7	7.4	4.5	8.0	2.7	100
11-Aug	5.8	2.0	2.2	5.1	3.1	2.1	5.5	3.5	1.3	4.4	1.3	4.2	1.0	5.6	2.7	5.9	10.3	7.4	5.8	4.8	4.2	4.1	4.2	3.8	100
12-Aug	4.0	4.7	1.9	7.0	3.0	0.6	3.0	1.9	0.9	1.9	4.3	7.9	5.3	2.8	4.3	4.0	8.3	4.0	6.6	5.1	5.1	8.1	3.8	1.5	100
Percentage of Daily Total	4.5	4.2	3.8	3.8	3.0	2.9	2.5	2.2	2.4	2.2	2.5	3.8	4.6	3.7	3.5	4.4	5.9	7.0	6.5	5.1	4.3	5.6	6.5	5.1	100

**Appendix D6.**—Percentage of daily total Yentna River south bank sonar counts by hour, 7 July through 12 August, 2004.

Date	Counts by Hour																								Daily Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
7-Jul	0.0	4.3	4.3	4.3	0.0	2.2	4.3	2.2	2.2	0.0	0.0	0.0	0.0	0.0	6.5	4.3	2.2	4.3	10.9	6.5	13.0	17.4	10.9	0.0	100
8-Jul	2.2	7.9	6.7	4.5	2.2	10.1	10.1	10.1	12.4	1.1	1.1	4.5	1.1	2.2	1.1	0.0	6.7	2.2	1.1	1.1	1.1	1.1	0.0	9.0	100
9-Jul	3.8	12.8	5.1	1.3	6.4	6.4	9.0	1.3	6.4	1.3	1.3	7.7	0.0	6.4	2.6	1.3	5.1	1.3	6.4	0.0	2.6	1.3	6.4	3.8	100
10-Jul	13.3	1.2	3.6	8.4	7.2	15.7	1.2	7.2	3.6	0.0	7.2	2.4	2.4	6.0	1.2	2.4	1.2	3.6	4.8	0.0	1.2	0.0	3.6	2.4	100
11-Jul	8.6	3.4	0.0	3.4	6.9	3.4	12.1	1.7	5.2	3.4	0.0	1.7	1.7	3.4	0.0	0.0	12.1	3.4	1.7	1.7	6.9	1.7	8.6	8.6	100
12-Jul	4.3	2.6	6.9	1.7	1.7	4.3	8.6	0.9	0.0	0.9	0.0	4.3	6.0	5.2	3.4	0.0	0.0	5.2	5.2	17.2	4.3	6.0	5.2	6.0	100
13-Jul	3.2	1.6	0.0	1.1	3.8	5.9	2.2	3.2	5.9	0.0	3.8	5.9	2.2	3.8	1.1	4.3	8.6	8.1	9.1	10.2	7.5	1.6	3.2	3.8	100
14-Jul	1.8	3.4	2.1	1.6	1.6	3.0	1.9	0.6	1.6	1.8	3.3	7.4	4.4	2.9	4.8	4.3	3.2	6.1	4.3	8.4	4.8	4.9	7.9	14.0	100
15-Jul	1.6	2.3	1.9	1.9	2.5	2.5	1.5	1.4	2.5	4.0	2.3	3.9	3.9	4.4	5.4	5.0	5.4	7.7	8.0	5.8	5.5	5.1	7.4	7.9	100
16-Jul	4.0	4.3	4.1	3.8	4.3	4.0	3.2	3.2	3.9	3.9	3.4	5.1	4.8	3.8	3.1	5.3	4.4	4.9	5.0	2.5	4.7	4.8	5.0	4.5	100
17-Jul	4.6	4.9	4.9	4.5	4.4	4.1	3.1	2.6	3.7	4.0	4.3	5.8	5.4	5.3	4.5	2.0	3.9	4.6	4.1	4.0	2.4	4.0	4.5	4.7	100
18-Jul	5.2	5.1	5.1	5.3	4.8	4.3	2.9	2.6	4.3	4.7	4.0	3.7	4.9	5.4	4.8	3.8	3.9	4.7	4.2	4.4	2.3	2.4	3.5	3.5	100
19-Jul	5.0	4.9	4.4	4.0	4.3	4.3	2.8	2.9	4.4	4.6	1.4	7.4	6.2	5.1	3.3	3.2	5.1	5.3	4.9	3.7	2.2	2.6	4.3	3.6	100
20-Jul	4.6	3.2	3.5	4.8	6.8	6.0	2.8	3.4	3.2	4.2	4.8	5.6	5.9	6.8	4.4	1.8	3.3	4.9	3.8	3.9	2.8	2.0	2.6	4.9	100
21-Jul	4.0	5.7	4.2	5.1	4.1	4.2	3.3	2.0	2.3	4.7	2.9	5.5	5.4	5.3	3.4	3.0	4.2	5.5	4.4	2.9	3.0	5.0	5.4	4.6	100
22-Jul	2.4	3.5	4.0	3.8	3.8	4.0	2.1	1.8	3.8	3.8	3.4	5.2	4.4	6.1	3.8	3.1	3.6	4.7	4.4	3.4	3.8	7.2	7.2	6.9	100
23-Jul	2.8	3.3	3.9	3.7	3.4	3.5	2.5	2.7	3.5	3.4	3.3	4.7	4.9	4.9	4.1	3.5	4.3	4.6	5.5	6.1	4.6	5.4	5.6	5.7	100
24-Jul	6.2	6.2	5.5	4.6	4.5	4.3	3.2	3.1	3.9	3.9	3.5	5.1	4.8	5.6	2.8	4.0	3.6	3.7	4.3	4.4	2.4	2.5	4.2	3.6	100
25-Jul	4.7	4.8	4.7	3.9	4.3	4.4	2.7	2.0	3.5	3.6	2.1	3.7	4.9	3.7	3.0	2.9	3.1	4.5	4.7	4.3	5.3	6.0	7.1	6.1	100
26-Jul	3.3	4.6	4.7	5.3	4.8	4.8	4.0	3.7	4.0	3.2	3.9	6.1	4.8	3.9	4.3	3.1	3.9	5.1	4.5	3.9	3.2	3.4	3.5	4.0	100
27-Jul	6.3	6.8	6.6	5.9	6.0	5.6	4.8	3.8	4.8	4.7	3.4	4.9	3.9	3.8	3.2	2.9	4.5	4.2	2.8	2.1	2.2	3.1	1.9	1.8	100
28-Jul	3.7	5.7	7.7	6.2	4.1	3.7	3.0	4.2	2.8	2.8	3.5	3.9	4.6	5.6	6.5	4.1	4.4	5.5	4.8	3.1	2.5	2.8	2.6	2.2	100
29-Jul	2.0	1.9	1.9	1.9	2.1	1.3	1.9	1.1	1.5	1.2	2.6	2.6	4.4	4.4	4.0	3.7	7.2	8.1	7.4	8.7	6.4	8.7	7.2	7.8	100
30-Jul	2.1	2.2	2.3	2.2	2.3	2.9	3.2	2.7	2.9	3.5	3.1	3.8	4.4	4.6	6.3	4.1	4.2	6.1	6.5	6.2	4.8	6.9	6.7	6.2	100
31-Jul	4.6	4.4	3.8	3.9	3.5	3.7	3.8	3.2	2.4	3.6	4.2	5.8	5.0	4.4	4.0	4.3	5.1	4.4	5.1	4.5	3.7	4.6	4.2	3.8	100
1-Aug	4.9	5.3	4.5	4.1	4.7	3.9	4.0	3.7	3.8	3.9	3.6	5.4	4.5	5.2	3.8	3.9	3.2	5.2	4.2	3.9	3.1	3.1	3.7	4.5	100
2-Aug	6.9	6.9	5.6	5.4	4.8	4.4	4.2	4.0	3.2	3.3	3.1	4.0	4.7	2.9	4.4	3.4	3.8	4.2	4.2	4.2	2.9	3.5	3.5	2.6	100
3-Aug	4.9	5.6	4.1	3.7	4.8	3.9	2.8	3.1	3.4	3.7	2.9	3.8	4.4	5.0	4.1	4.1	5.0	5.6	5.4	5.2	2.7	3.5	4.3	3.9	100
4-Aug	2.9	2.8	2.6	2.1	1.8	2.4	2.2	2.5	2.5	1.9	3.4	5.1	4.8	3.8	3.1	5.1	7.4	7.5	7.3	5.5	5.3	5.7	5.3	7.0	100
5-Aug	5.1	5.0	5.2	4.9	4.4	5.0	3.9	4.6	2.7	3.1	4.4	4.9	5.0	5.3	5.1	3.6	3.0	2.5	3.3	4.9	3.1	3.3	3.2	4.7	100
6-Aug	4.1	3.6	3.0	3.1	3.8	3.8	3.8	2.6	2.5	4.6	3.9	6.0	6.0	4.0	5.5	4.3	3.6	4.7	4.2	5.8	4.4	3.6	4.0	5.1	100
7-Aug	4.7	5.2	5.4	5.1	4.4	4.8	4.5	4.5	3.4	3.8	3.9	6.3	5.6	1.7	1.0	3.8	2.1	3.6	5.0	2.7	4.3	4.9	5.2	4.2	100
8-Aug	5.0	3.2	4.0	4.1	3.3	3.5	3.8	3.6	2.5	1.8	2.4	4.9	4.1	3.5	4.4	6.6	6.1	6.3	6.2	4.6	3.4	4.0	4.3	4.4	100
9-Aug	4.9	5.3	5.3	4.3	3.2	3.6	4.2	4.4	3.3	3.4	3.6	5.6	5.3	4.1	2.6	3.6	6.0	5.4	6.4	4.1	2.7	1.7	3.0	4.1	100
10-Aug	5.4	5.2	4.6	2.2	2.4	2.1	3.9	4.1	3.4	2.5	3.5	4.2	3.3	3.4	4.5	5.9	5.4	6.1	7.0	4.7	3.9	4.7	3.3	4.4	100
11-Aug	4.6	4.7	2.6	3.0	3.7	2.5	3.7	3.3	3.0	2.5	3.3	5.0	3.9	3.8	3.5	5.6	6.8	6.8	5.0	6.5	4.2	4.0	3.8	4.0	100
12-Aug	4.1	5.4	3.6	5.5	4.8	3.2	2.6	3.4	2.4	3.5	3.7	3.5	4.8	3.9	4.3	4.3	6.8	6.0	3.2	5.7	5.7	2.9	3.6	3.2	100
Percentage of Daily Total	4.3	4.6	4.4	4.2	4.1	4.0	3.3	3.0	3.5	3.7	3.4	5.0	4.9	4.6	4.0	3.7	4.3	5.0	4.9	4.3	3.6	4.2	4.6	4.6	100

**Appendix D7.**—Yentna River north bank sonar counts by sector, 7 July through 12 August, 2004.

Date	Counts by Sector												Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	Total	Total
7-Jul	32	18	58	21	10	3	2	1	2	2	0	3	152	152
8-Jul	71	30	61	28	8	1	5	4	0	7	0	3	218	370
9-Jul	68	66	39	38	15	5	7	3	7	2	0	1	251	621
10-Jul	23	52	37	18	9	8	3	6	4	4	1	2	167	788
11-Jul	16	17	39	32	4	8	0	0	1	4	1	8	130	918
12-Jul	20	45	110	48	14	6	9	2	3	4	2	3	266	1,184
13-Jul	30	25	122	92	23	7	7	5	0	6	4	7	328	1,512
14-Jul	23	71	378	251	63	24	15	11	40	15	8	19	918	2,430
15-Jul	54	240	675	528	155	65	50	23	31	8	7	21	1,857	4,287
16-Jul	85	693	1,611	1,143	294	140	52	55	60	13	10	28	4,184	8,471
17-Jul	30	596	1,488	920	222	83	48	20	20	25	7	10	3,469	11,940
18-Jul	7	250	485	184	42	19	9	4	5	3	5	4	1,017	12,957
19-Jul	16	200	485	205	52	35	28	18	6	8	5	8	1,066	14,023
20-Jul	34	208	633	332	81	50	28	13	10	21	13	16	1,439	15,462
21-Jul	12	59	262	330	142	56	27	9	8	15	7	7	934	16,396
22-Jul	11	136	845	797	225	87	37	14	16	11	7	12	2,198	18,594
23-Jul	24	256	1,050	848	256	100	56	38	35	28	41	17	2,749	21,343
24-Jul	21	558	1,126	633	133	27	25	25	27	55	26	38	2,694	24,037
25-Jul	48	555	1,014	457	121	31	31	26	54	63	49	17	2,466	26,503
26-Jul	135	1,622	1,310	275	38	16	49	34	59	131	70	24	3,763	30,266
27-Jul	65	1,028	607	127	9	5	9	5	11	59	27	8	1,960	32,226
28-Jul	259	616	315	129	10	0	0	0	1	5	0	3	1,338	33,564
29-Jul	599	2,128	878	455	88	12	15	25	8	0	0	9	4,217	37,781
30-Jul	480	2,269	1,908	790	222	37	28	33	28	41	31	38	5,905	43,686
31-Jul	159	1,041	1,310	615	161	60	44	37	58	59	40	61	3,645	47,331
1-Aug	64	711	969	564	139	66	44	49	35	38	25	34	2,738	50,069
2-Aug	39	347	433	265	85	28	15	28	32	36	25	28	1,361	51,430
3-Aug	26	257	439	301	63	23	19	15	27	26	17	23	1,236	52,666
4-Aug	32	393	640	459	116	37	20	17	31	30	24	18	1,817	54,483
5-Aug	36	365	506	315	69	35	23	15	19	28	12	9	1,432	55,915
6-Aug	49	287	332	172	43	15	26	21	33	41	18	24	1,061	56,976
7-Aug	51	181	408	148	33	19	14	26	23	24	26	12	965	57,941
8-Aug	35	149	469	342	78	26	27	26	14	19	12	21	1,218	59,159
9-Aug	31	205	508	292	64	30	23	13	32	30	11	17	1,256	60,415
10-Aug	25	154	368	253	52	31	25	14	9	28	7	6	972	61,387
11-Aug	16	102	272	227	41	17	5	1	8	10	7	6	712	62,099
12-Aug	10	42	172	180	21	7	4	2	3	15	8	6	470	62,569
Total	2,736	15,972	22,362	12,814	3,201	1,219	829	638	760	914	553	571	62,569	

**Appendix D8.**—Yentna River south bank sonar counts by sector, 7 July through 12 August, 2004.

Date	Counts by Sector												Daily	Cum
	1	2	3	4	5	6	7	8	9	10	11	12	Total	Total
7-Jul	15	1	5	11	4	5	0	0	1	2	0	2	46	46
8-Jul	34	3	12	18	7	5	2	3	1	2	0	2	89	135
9-Jul	23	4	13	22	10	2	0	1	3	0	0	0	78	213
10-Jul	15	0	11	25	13	3	1	1	4	0	9	1	83	296
11-Jul	12	0	6	18	9	6	2	2	0	1	0	2	58	354
12-Jul	8	0	13	38	31	9	3	1	2	11	0	0	116	470
13-Jul	0	0	24	53	54	26	15	3	8	1	2	0	186	656
14-Jul	1	1	75	273	210	99	62	38	44	16	2	0	821	1,477
15-Jul	18	12	1,481	4,532	3,059	1,234	727	444	381	169	32	4	12,093	13,570
16-Jul	11	57	3,460	10,084	6,344	2,590	1,254	821	577	247	57	13	25,515	39,085
17-Jul	13	145	4,703	8,335	4,543	1,810	1,099	688	374	177	27	13	21,927	61,012
18-Jul	20	169	4,630	7,114	3,265	1,302	891	560	335	161	46	15	18,508	79,520
19-Jul	193	1,791	3,523	3,757	1,853	1,141	684	415	260	104	91	257	14,069	93,589
20-Jul	169	1,805	2,294	1,316	774	705	381	278	140	68	11	10	7,951	101,540
21-Jul	157	1,778	1,887	1,087	688	593	342	230	150	58	24	22	7,016	108,556
22-Jul	189	2,412	2,787	1,652	933	801	427	304	142	45	58	6	9,756	118,312
23-Jul	279	6,211	6,431	3,431	1,955	1,579	848	448	243	94	75	33	21,627	139,939
24-Jul	391	6,869	5,854	2,889	1,544	1,140	596	333	188	93	33	5	19,935	159,874
25-Jul	174	3,746	4,137	2,301	1,585	1,383	831	525	263	122	49	8	15,124	174,998
26-Jul	579	3,486	5,634	4,447	3,379	2,775	1,493	838	450	202	217	29	23,529	198,527
27-Jul	115	65	3,557	4,644	3,577	2,453	1,058	501	255	89	150	91	16,555	215,082
28-Jul	403	577	2,129	1,859	838	423	182	80	27	10	9	2	6,539	221,621
29-Jul	280	742	2,118	1,264	414	168	108	61	21	10	0	8	5,194	226,815
30-Jul	148	802	3,939	3,805	2,069	1,459	903	471	241	82	10	51	13,980	240,795
31-Jul	75	682	3,632	5,328	3,611	2,748	1,662	792	310	149	16	38	19,043	259,838
1-Aug	57	286	1,323	3,108	2,756	2,223	1,442	656	350	125	25	62	12,413	272,251
2-Aug	103	292	1,323	2,154	1,730	1,513	939	527	246	96	22	104	9,049	281,300
3-Aug	58	131	835	1,583	1,161	861	634	269	121	46	2	53	5,754	287,054
4-Aug	44	278	1,667	2,164	1,306	882	597	185	80	26	4	13	7,246	294,300
5-Aug	44	306	1,649	2,325	1,504	1,223	764	230	103	46	5	1	8,200	302,500
6-Aug	49	256	1,498	2,323	1,732	1,436	795	345	167	85	26	24	8,736	311,236
7-Aug	127	119	1,410	2,309	1,581	1,077	514	225	120	74	26	64	7,646	318,882
8-Aug	177	130	1,270	1,869	1,406	913	432	175	99	52	26	44	6,593	325,475
9-Aug	137	159	1,059	1,582	1,104	713	316	125	44	45	17	27	5,328	330,803
10-Aug	80	119	917	1,079	696	445	193	73	33	24	7	5	3,671	334,474
11-Aug	96	160	776	754	558	298	119	55	26	22	5	3	2,872	337,346
12-Aug	85	93	576	681	423	216	96	34	11	13	1	0	2,229	339,575
Total	4,379	33,687	76,658	90,234	56,726	36,259	20,412	10,737	5,820	2,567	1,084	1,012	339,575	

**Appendix D9.**—Percentage of daily total Yentna River north bank sonar counts by sector, 7 July through 12 August, 2004.

Date	Counts by Sector												Daily
	1	2	3	4	5	6	7	8	9	10	11	12	Total
7-Jul	21.1	11.8	38.2	13.8	6.6	2.0	1.3	0.7	1.3	1.3	0.0	2.0	100
8-Jul	32.6	13.8	28.0	12.8	3.7	0.5	2.3	1.8	0.0	3.2	0.0	1.4	100
9-Jul	27.1	26.3	15.5	15.1	6.0	2.0	2.8	1.2	2.8	0.8	0.0	0.4	100
10-Jul	14.3	31.0	22.0	10.7	5.4	4.8	1.8	3.6	2.4	2.4	0.6	1.2	100
11-Jul	12.3	13.1	30.0	24.6	3.1	6.2	0.0	0.0	0.8	3.1	0.8	6.2	100
12-Jul	7.5	16.9	41.4	18.0	5.3	2.3	3.4	0.8	1.1	1.5	0.8	1.1	100
13-Jul	9.1	7.6	37.2	28.0	7.0	2.1	2.1	1.5	0.0	1.8	1.2	2.1	100
14-Jul	2.5	7.7	41.2	27.3	6.9	2.6	1.6	1.2	4.4	1.6	0.9	2.1	100
15-Jul	2.9	12.9	36.3	28.4	8.3	3.5	2.7	1.2	1.7	0.4	0.4	1.1	100
16-Jul	2.0	16.6	38.5	27.3	7.0	3.3	1.2	1.3	1.4	0.3	0.2	0.7	100
17-Jul	1.2	17.1	42.7	26.4	6.4	2.4	1.4	0.6	0.6	0.7	0.2	0.3	100
18-Jul	0.7	24.6	47.7	18.1	4.1	1.9	0.9	0.4	0.5	0.3	0.5	0.4	100
19-Jul	1.5	18.8	45.5	19.2	4.9	3.3	2.6	1.7	0.6	0.8	0.5	0.8	100
20-Jul	2.4	14.5	44.0	23.1	5.6	3.5	1.9	0.9	0.7	1.5	0.9	1.1	100
21-Jul	1.3	6.3	28.1	35.3	15.2	6.0	2.9	1.0	0.9	1.6	0.7	0.7	100
22-Jul	0.5	6.2	38.4	36.3	10.2	4.0	1.7	0.6	0.7	0.5	0.3	0.5	100
23-Jul	0.9	9.3	38.2	30.8	9.3	3.6	2.0	1.4	1.3	1.0	1.5	0.6	100
24-Jul	0.8	20.7	41.8	23.5	4.9	1.0	0.9	0.9	1.0	2.0	1.0	1.4	100
25-Jul	1.9	22.5	41.1	18.5	4.9	1.3	1.3	1.1	2.2	2.6	2.0	0.7	100
26-Jul	4.4	42.8	34.5	7.2	1.0	0.4	1.3	0.9	1.6	3.5	1.8	0.6	100
27-Jul	3.3	52.4	31.0	6.5	0.5	0.3	0.5	0.3	0.6	3.0	1.4	0.4	100
28-Jul	19.4	46.0	23.5	9.6	0.7	0.0	0.0	0.0	0.1	0.4	0.0	0.2	100
29-Jul	14.2	50.5	20.8	10.8	2.1	0.3	0.4	0.6	0.2	0.0	0.0	0.2	100
30-Jul	8.1	38.4	32.3	13.4	3.8	0.6	0.5	0.6	0.5	0.7	0.5	0.6	100
31-Jul	4.4	28.6	35.9	16.9	4.4	1.6	1.2	1.0	1.6	1.6	1.1	1.7	100
1-Aug	2.3	26.0	35.4	20.6	5.1	2.4	1.6	1.8	1.3	1.4	0.9	1.2	100
2-Aug	2.9	25.5	31.8	19.5	6.2	2.1	1.1	2.1	2.4	2.6	1.8	2.1	100
3-Aug	2.1	20.8	35.5	24.4	5.1	1.9	1.5	1.2	2.2	2.1	1.4	1.9	100
4-Aug	1.8	21.6	35.2	25.3	6.4	2.0	1.1	0.9	1.7	1.7	1.3	1.0	100
5-Aug	2.5	25.5	35.3	22.0	4.8	2.4	1.6	1.0	1.3	2.0	0.8	0.6	100
6-Aug	4.6	27.0	31.3	16.2	4.1	1.4	2.5	2.0	3.1	3.9	1.7	2.3	100
7-Aug	5.3	18.8	42.3	15.3	3.4	2.0	1.5	2.7	2.4	2.5	2.7	1.2	100
8-Aug	2.9	12.2	38.5	28.1	6.4	2.1	2.2	2.1	1.1	1.6	1.0	1.7	100
9-Aug	2.5	16.3	40.4	23.2	5.1	2.4	1.8	1.0	2.5	2.4	0.9	1.4	100
10-Aug	2.6	15.8	37.9	26.0	5.3	3.2	2.6	1.4	0.9	2.9	0.7	0.6	100
11-Aug	2.2	14.3	38.2	31.9	5.8	2.4	0.7	0.1	1.1	1.4	1.0	0.8	100
12-Aug	2.1	8.9	36.6	38.3	4.5	1.5	0.9	0.4	0.6	3.2	1.7	1.3	100
Percentage of Daily Total	4.4	25.5	35.7	20.5	5.1	1.9	1.3	1.0	1.2	1.5	0.9	0.9	100

**Appendix D10.**—Percentage of daily total Yentna River south bank sonar counts by sector, 7 July through 12 August, 2004.

Date	Counts by Sector												Daily
	1	2	3	4	5	6	7	8	9	10	11	12	Total
7-Jul	32.6	2.2	10.9	23.9	8.7	10.9	0.0	0.0	2.2	4.3	0.0	4.3	100
8-Jul	38.2	3.4	13.5	20.2	7.9	5.6	2.2	3.4	1.1	2.2	0.0	2.2	100
9-Jul	29.5	5.1	16.7	28.2	12.8	2.6	0.0	1.3	3.8	0.0	0.0	0.0	100
10-Jul	18.1	0.0	13.3	30.1	15.7	3.6	1.2	1.2	4.8	0.0	10.8	1.2	100
11-Jul	20.7	0.0	10.3	31.0	15.5	10.3	3.4	3.4	0.0	1.7	0.0	3.4	100
12-Jul	6.9	0.0	11.2	32.8	26.7	7.8	2.6	0.9	1.7	9.5	0.0	0.0	100
13-Jul	0.0	0.0	12.9	28.5	29.0	14.0	8.1	1.6	4.3	0.5	1.1	0.0	100
14-Jul	0.1	0.1	9.1	33.3	25.6	12.1	7.6	4.6	5.4	1.9	0.2	0.0	100
15-Jul	0.1	0.1	12.2	37.5	25.3	10.2	6.0	3.7	3.2	1.4	0.3	0.0	100
16-Jul	0.0	0.2	13.6	39.5	24.9	10.2	4.9	3.2	2.3	1.0	0.2	0.1	100
17-Jul	0.1	0.7	21.4	38.0	20.7	8.3	5.0	3.1	1.7	0.8	0.1	0.1	100
18-Jul	0.1	0.9	25.0	38.4	17.6	7.0	4.8	3.0	1.8	0.9	0.2	0.1	100
19-Jul	1.4	12.7	25.0	26.7	13.2	8.1	4.9	2.9	1.8	0.7	0.6	1.8	100
20-Jul	2.1	22.7	28.9	16.6	9.7	8.9	4.8	3.5	1.8	0.9	0.1	0.1	100
21-Jul	2.2	25.3	26.9	15.5	9.8	8.5	4.9	3.3	2.1	0.8	0.3	0.3	100
22-Jul	1.9	24.7	28.6	16.9	9.6	8.2	4.4	3.1	1.5	0.5	0.6	0.1	100
23-Jul	1.3	28.7	29.7	15.9	9.0	7.3	3.9	2.1	1.1	0.4	0.3	0.2	100
24-Jul	2.0	34.5	29.4	14.5	7.7	5.7	3.0	1.7	0.9	0.5	0.2	0.0	100
25-Jul	1.2	24.8	27.4	15.2	10.5	9.1	5.5	3.5	1.7	0.8	0.3	0.1	100
26-Jul	2.5	14.8	23.9	18.9	14.4	11.8	6.3	3.6	1.9	0.9	0.9	0.1	100
27-Jul	0.7	0.4	21.5	28.1	21.6	14.8	6.4	3.0	1.5	0.5	0.9	0.5	100
28-Jul	6.2	8.8	32.6	28.4	12.8	6.5	2.8	1.2	0.4	0.2	0.1	0.0	100
29-Jul	5.4	14.3	40.8	24.3	8.0	3.2	2.1	1.2	0.4	0.2	0.0	0.2	100
30-Jul	1.1	5.7	28.2	27.2	14.8	10.4	6.5	3.4	1.7	0.6	0.1	0.4	100
31-Jul	0.4	3.6	19.1	28.0	19.0	14.4	8.7	4.2	1.6	0.8	0.1	0.2	100
1-Aug	0.5	2.3	10.7	25.0	22.2	17.9	11.6	5.3	2.8	1.0	0.2	0.5	100
2-Aug	1.1	3.2	14.6	23.8	19.1	16.7	10.4	5.8	2.7	1.1	0.2	1.1	100
3-Aug	1.0	2.3	14.5	27.5	20.2	15.0	11.0	4.7	2.1	0.8	0.0	0.9	100
4-Aug	0.6	3.8	23.0	29.9	18.0	12.2	8.2	2.6	1.1	0.4	0.1	0.2	100
5-Aug	0.5	3.7	20.1	28.4	18.3	14.9	9.3	2.8	1.3	0.6	0.1	0.0	100
6-Aug	0.6	2.9	17.1	26.6	19.8	16.4	9.1	3.9	1.9	1.0	0.3	0.3	100
7-Aug	1.7	1.6	18.4	30.2	20.7	14.1	6.7	2.9	1.6	1.0	0.3	0.8	100
8-Aug	2.7	2.0	19.3	28.3	21.3	13.8	6.6	2.7	1.5	0.8	0.4	0.7	100
9-Aug	2.6	3.0	19.9	29.7	20.7	13.4	5.9	2.3	0.8	0.8	0.3	0.5	100
10-Aug	2.2	3.2	25.0	29.4	19.0	12.1	5.3	2.0	0.9	0.7	0.2	0.1	100
11-Aug	3.3	5.6	27.0	26.3	19.4	10.4	4.1	1.9	0.9	0.8	0.2	0.1	100
12-Aug	3.8	4.2	25.8	30.6	19.0	9.7	4.3	1.5	0.5	0.6	0.0	0.0	100
Percentage of Daily Total	1.3	9.9	22.6	26.6	16.7	10.7	6.0	3.2	1.7	0.8	0.3	0.3	100

**Appendix D11.**—Minimum and maximum daily counting ranges for both banks of the Yentna River and range from transducer where a minimum of 80% of the migration occurred in 2004.

Date	North Bank					South Bank				
	Counting Range		Average Sector	Range where > 80% of Migration	Sectors where > 80% of Migration	Counting Range		Average Sector	Range where > 80% of Migration	Sectors where > 80% of Migration
	(ft)	(m)	Width (m)	Occurred (m)	Occurred	(ft)	(m)	Width (m)	Occurred (m)	Occurred
7-Jul	31	9.4	0.8	3.1	1- 4	25	7.6	0.6	3.8	1- 6
7-Jul						24	7.3	0.6	3.7	1- 6
8-Jul	31	9.4	0.8	3.1	1- 4	24	7.3	0.6	3.0	1- 5
9-Jul	31	9.4	0.8	3.1	1- 4	24	7.3	0.6	3.0	1- 5
9-Jul	29	8.8	0.7	2.9	1- 4	28	8.5	0.7	3.6	1- 5
10-Jul	30	9.1	0.8	3.8	1- 5	25	7.6	0.6	3.8	1- 6
10-Jul	29.5	9.0	0.7	3.7	1- 5	28	8.5	0.7	4.3	1- 6
11-Jul	29.5	9.0	0.7	3.0	1- 4	28	8.5	0.7	4.3	1- 6
11-Jul						26	7.9	0.7	4.0	1- 6
12-Jul	29	8.8	0.7	2.9	1- 4	26	7.9	0.7	4.0	1- 6
12-Jul						22	6.7	0.6	3.4	1- 6
13-Jul	29	8.8	0.7	2.9	1- 4	23.5	7.2	0.6	3.6	1- 6
13-Jul	29	8.8	0.7	2.9	1- 4	21.5	6.6	0.5	3.3	1- 6
14-Jul	29	8.8	0.7	3.7	1- 5	21.5	6.6	0.5	3.3	1- 6
14-Jul	30	9.1	0.8	3.8	1- 5					
15-Jul	30	9.1	0.8	3.0	1- 4	21.5	6.6	0.5	3.3	1- 6
15-Jul	28.5	8.7	0.7	2.9	1- 4					
16-Jul	29	8.8	0.7	2.9	1- 4	21.5	6.6	0.5	3.3	1- 6
16-Jul	28	8.5	0.7	2.8	1- 4	20.5	6.2	0.5	3.1	1- 6
17-Jul	28	8.5	0.7	2.8	1- 4	20.5	6.2	0.5	2.6	1- 5
17-Jul	27	8.2	0.7	2.7	1- 4	23	7.0	0.6	2.9	1- 5
18-Jul	27	8.2	0.7	2.7	1- 4	23	7.0	0.6	2.9	1- 5
18-Jul	26.5	8.1	0.7	2.7	1- 4					
19-Jul	27	8.2	0.7	2.7	1- 4	23	7.0	0.6	3.5	1- 6
19-Jul	26.5	8.1	0.7	2.7	1- 4	22	6.7	0.6	3.4	1- 6
20-Jul	26	7.9	0.7	2.6	1- 4	22	6.7	0.6	2.8	1- 5
20-Jul	25.5	7.8	0.6	2.6	1- 4					
21-Jul	25.5	7.8	0.6	3.2	1- 5	22	6.7	0.6	3.4	1- 6
21-Jul	24	7.3	0.6	3.0	1- 5					
22-Jul	24	7.3	0.6	2.4	1- 4	22	6.7	0.6	2.8	1- 5
22-Jul	25	7.6	0.6	2.5	1- 4					
23-Jul	25	7.6	0.6	3.2	1- 5	22	6.7	0.6	2.8	1- 5
23-Jul	31	9.4	0.8	3.9	1- 5	21	6.4	0.5	2.7	1- 5
24-Jul	31	9.4	0.8	3.1	1- 4	22	6.7	0.6	2.2	1- 4
25-Jul	33	10.1	0.8	3.4	1- 4	22	6.7	0.6	3.4	1- 6
26-Jul	33	10.1	0.8	2.5	1- 3	22	6.7	0.6	3.4	1- 6
26-Jul	34	10.4	0.9	2.6	1- 3	21	6.4	0.5	3.2	1- 6
27-Jul	34	10.4	0.9	2.6	1- 3	21	6.4	0.5	3.2	1- 6
28-Jul	34	10.4	0.9	2.6	1- 3	21	6.4	0.5	2.7	1- 5
28-Jul	36	11.0	0.9	2.7	1- 3	27	8.2	0.7	3.4	1- 5
29-Jul	35	10.7	0.9	2.7	1- 3	27	8.2	0.7	2.7	1- 4
29-Jul	33	10.1	0.8	2.5	1- 3					
30-Jul	30	9.1	0.8	3.0	1- 4	27	8.2	0.7	4.1	1- 6
30-Jul	29.5	9.0	0.7	3.0	1- 4					
31-Jul	29.5	9.0	0.7	3.0	1- 4	27	8.2	0.7	4.1	1- 6
31-Jul	25	7.6	0.6	2.5	1- 4	22	6.7	0.6	3.4	1- 6
1-Aug	25	7.6	0.6	2.5	1- 4	22	6.7	0.6	3.9	1- 7

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Date	North Bank					South Bank				
	Counting Range		Average Sector	Range where > 80% of Migration	Sectors where > 80% of Migration	Counting Range		Average Sector	Range where > 80% of Migration	Sectors where > 80% of Migration
	(ft)	(m)	(m)	Occurred (m)	Occurred	(ft)	(m)	(m)	Occurred (m)	Occurred
2-Aug						22	6.7	0.6	3.9	1- 7
3-Aug	25	7.6	0.6	3.2	1- 5	22	6.7	0.6	3.4	1- 6
4-Aug	25	7.6	0.6	2.5	1- 4	22	6.7	0.6	3.4	1- 6
4-Aug	23	7.0	0.6	2.3	1- 4	22.5	6.9	0.6	3.4	1- 6
5-Aug	24	7.3	0.6	2.4	1- 4	22	6.7	0.6	3.4	1- 6
6-Aug	25	7.6	0.6	3.2	1- 5	22.5	6.9	0.6	3.4	1- 6
6-Aug						21	6.4	0.5	3.2	1- 6
7-Aug	25.5	7.8	0.6	2.6	1- 4	21	6.4	0.5	3.2	1- 6
8-Aug	24	7.3	0.6	2.4	1- 4	21	6.4	0.5	3.2	1- 6
9-Aug	24	7.3	0.6	2.4	1- 4	21	6.4	0.5	3.2	1- 6
10-Aug	24	7.3	0.6	2.4	1- 4	21	6.4	0.5	3.2	1- 6
10-Aug	23.5	7.2	0.6	2.4	1- 4					
11-Aug	23.5	7.2	0.6	2.4	1- 4	21	6.4	0.5	2.7	1- 5
12-Aug	23.5	7.2	0.6	2.4	1- 4	21	6.4	0.5	2.7	1- 5
Average	8.6 m					Average 7.0 m				